"Shut your Mouth."
See page 326.

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HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &c.

VOL. XIV.—No. 359. FRIDAY, FEBRUARY 21, 1890. [PRICE TWOPENCE.

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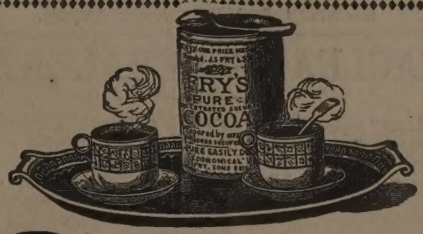

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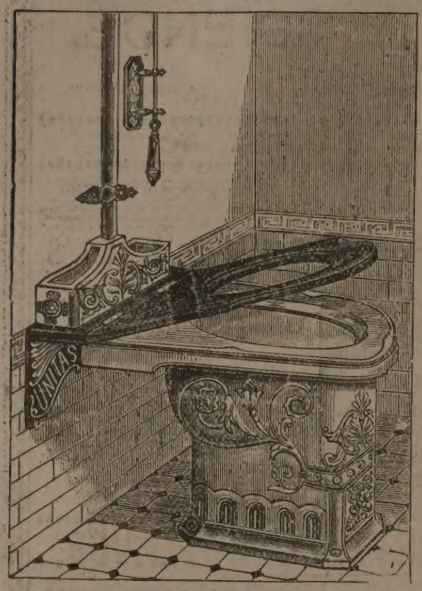

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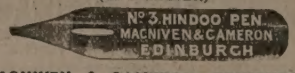

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◆ HEALTH ◆

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, FEBRUARY* 21, 1890.

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Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

DR. HANSEN, the Norwegian discoverer of the germ of leprosy, went to America to trace the history of leper immigrants who had settled in Wisconsin, Minnesota, and Dakota. Of 160 original leper immigrants, he was able to find only 13; a few more may be living, but nearly 147 are dead. Of all their descendants, so far as great-grandchildren, not one has become a leper. In America apparently the disease does not increase, nor does it appear to be hereditary. The failure to spread there is thought to be due to the improved conditions of living which the immigrants are able to secure on that side of the ocean. The *Sanitary Inspector*, in speaking of a leper lately found at Brentwood, England, says that many persons believe that leprosy has entirely disappeared from England, yet there has probably never been a year in which a score of lepers could not be produced, and that, though England used to have lepers enough, leprosy has become a very rare disease since English homes and English roads have been kept clean.

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FROM a report by Dr. L. Schrötter on the distribution of consumption in Switzerland, it would seem that the inhabitants even of high altitudes are by no means so free from this disease as we are wont to suppose. The tables of deaths for the eleven years 1876-86 show that consumption is endemic in every part of Switzerland, not a single district being free from it. On the whole, the deaths from this cause are fewer in the high than in the low lying districts, but it cannot be said that the mortality from this cause is inversely proportionate to the altitude. Wherever there is a large industrial population, the consumption mortality is considerable. Industrial populations always suffer much more than agricultural populations where the altitude is the same.

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THE proper time to take medicine, according to Christison, is as follows: Alkalies and iodine compounds on an empty stomach, the latter mixed with food containing acids, starch, &c., is too easily decomposed, and its action impared. Acids should be taken on a full stomach, unless the stomach be already acid, when they should be taken before meals. Potent mineral substances, such as arsenic, copper, zinc, should be administered after eating, silver nitrate before, and mercury, tannin, and alcohol when the digestion has ceased; phosphates, cod liver oil, malt extracts, and constructives generally, during meal time, which should be digested with the food.

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I NOTICE that an interesting study has been lately made by Herr Tarchenoff of electric currents in the skin from mental excitement. Unpolarizable clay-electrodes, connected with a delicate galvanometer, were applied to various parts—hands, fingers, feet, toes, nose, ear, and back; and, after compensation of any currents which occurred during rest, the effects of mental stimulation were noted. Light tickling with a brush causes, after a few seconds' period of latency, a gradually increasing strong deflection. Hot water has a like effect; cold, or the pain from a needle-prick, less. Sound, light, taste, and smell stimuli act simularly. If the eyes have been closed some time, mere opening of them causes a considerable deflection from the skin of the hand. Different colours here acted unequally.

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IT is remarkable that these skin-currents also arise when the sensations are merely imagined. One vividly imagines, *e.g.*, he is suffering intense heat, and a strong current occurs, which goes down when the idea of cold is substituted. Mental effort produces currents varying with its amount. Thus, multiplication of small figures gives hardly any current; that of large a strong one. If a person is in tense expectation, the galvanometer mirror makes irregular oscillations. When the electrodes are on hand or arm, a voluntary movement, such as contraction of a toe or convergence of the eyes, gives a strong current. In all the experiments it appeared that, with equal nerve excitation, the strength of the skin-currents depended on the degree to which the part of the skin bearing the electrodes was furnished with sweat-glands. Thus, some parts of the back, and upper leg and arm, having few of these, gave hardly any current. Herr Tarchenoff considers that the course of nearly every kind of nerve-activity is accompanied by increased action of the skin-glands. Every nerve-function, it is known, causes a rise of temperature, and accumulation of the products of exchange of material in the body. Increase of sweat-excretion favours cooling, and the getting rid of those products.

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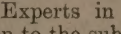
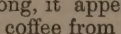
PALMISTRY has been coming to the front (in a scientific direction) of late in the shape of a new application of photography at the Paris Prefecture of Police. M. Bertillon has been devoting himself for some months to the study of the physical peculiarities engendered by the pursuit of different occupations. The police have frequently to deal with portions of bodies, and it would greatly aid their investigations to be able to determine the calling of the murdered person in each particular case. The hand is, as a rule, the part naturally most affected by the occupation, and M. Bertillon has taken a very large series of photographs, each one showing on a large scale the hands, on a smaller scale the whole figure of the workman at his work, so that one may see at a glance the position of the body, and which are the parts that undergo friction from the tools in use.

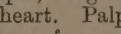
From the hands of the navvy all the secondary lines disappear, and a peculiar callosity is developed where the spade-handle rubs against the hand; the hands of tin-plate workers are covered with little crevices produced by the acids employed: the hands of lace-makers are smooth, but they have blisters full of serum on the back and callosites on the front part of the shoulder, due to the friction of the straps of the loom; the thumb and the first joints of the index of metal-workers show very large blisters, whilst the left hand has scars made by the sharp fragments of metal. Experts in forensic medicine have before drawn attention to the subject, but this is the first time that an investigation has been carried out on a large scale, and in M. Bertillon's hands it may lead to important results.



Much has been said concerning the undoubtedly evil effects of excessive tea-drinking, says a medical contemporary. Dr. F. Mendel has recently enjoyed opportunities of studying the results of an unbridled abuse of coffee, and his results are now published. The great industrial centre round Essen includes a very large female population. Whilst the women of the working classes in this country are often addicted to dosing themselves with tea that has stood too long, it appears that the workmen's wives at Essen drink coffee from morning till night. Some consume over a pound of Ceylon coffee weekly, and one pound contains over sixty-four grains of caffeine. In consequence, nervous, muscular, and circulatory disturbances are frequent. The nerve-symptoms are characterized by a feeling of general weakness, depression of spirits, and aversion for labour even in industrious subjects, with headache and insomnia.



A strong dose of coffee causes the temporary disappearance of all these symptoms. The muscular symptoms consist of distinct muscular weakness, and trembling of the hands even during rest. The circulatory symptoms are marked by a small, rapid, irregular pulse, and feeble impulse of the apex of the heart. Palpitations and heaviness in the heart-region are frequent. The hands and feet feel very cold, and the complexion becomes sallow. Dyspeptic symptoms, chiefly of the nervous type, are very common. Acne rosacea is seen in a large number of the sufferers. These coffee-drinkers cannot be cured by simple abstention from their favourite drink, with substitution of milk as a beverage. They require rest from work, open-air exercise, cold ablutions followed by friction, and small doses of brandy. Care must be taken, especially when a large body of working women are under the care of a medical officer lest the first and last items of treatment do not lead to malingering.



Statistics collected by Fodor, and published in the *Deutsche med. Wochenschrift*, July 18th, 1889, indicate that in Hungary the life of women is materially shorter than that of men. Up to the age of thirty years there are more women than men in the population; after this age the proportion falls from 109·7 per cent. to 85 and 96 per cent. at the ages of eighty and over eighty years. This condition is the opposite, he states, to that found elsewhere in Europe, where the proportion of living women to males is 105·5 per cent. at thirty years of age, and rises to 144 per cent. after eighty years.

Original Essays

"Life is not to live, but to be well."—*Martial.*

"SHUT YOUR MOUTH."

By M.D.

The above remark undoubtedly sounds very rude at first hearing; but when we remove it from the commonplace side of life, and regard it in a physiological sense, the command is seen to be of a thoroughly sensible nature. In 1870 a small book bearing the above title was published in London. The author was Mr. George Catlin, who had been famous for his travels among the North American Indians, and whose works on the habits and customs of savage races are still quoted and admired. I have before me what purports to be the "4th Edition, Considerably Enlarged," of this work, which, much to one's regret, is (I believe) out of print.

Mr. Catlin's phrase, however, may serve as a text for a very brief discourse on the wisdom of shutting one's mouth. In an ordinary sense that the advice is good, no one need deny. The golden silence is often much preferable to the silvern speech; only did all the world observe the sage's aphorism, one might feel after all, that a world of sound was a preferable place wherein to dwell, to a universe of silence. Besides, what about all the wisdom and instruction which speech conveys? Education can never be a matter of silence on any side; so that like the sayings of many both wiser and less cultured men, Carlyle's expression—a translation of a German or Dutch proverb, by the way—requires to be taken with due regard to circumstances, and with the proverbial grain of salt.

If it be difficult to defend the "golden silence" which keeps the mouth shut from an educational point of view, it is easy to justify it from a medical standpoint. The mouth, to begin with, is a complicated cavity, serving primarily for the reception of food. Into it, or from it, open the windpipe and the gullet; the former the passage leading to the lungs, the latter leading to the stomach. Then, also, the nostrils (in all animals above the rank of fishes) open backwards into the mouth. The Eustachian tubes of the ears also open into this cavity. To the back part of the mouth, which is somewhat funnel-shaped where it leads downwards into the gullet and windpipe, the name of *pharynx* is given.

Now, the contention of the physiologist is, that *the nose is the proper breathing-channel, and not the mouth.* Hence his agreement with Mr. Catlin's advice to "shut the mouth." The nostrils or nasal cavities are by no means so simple as might at first sight be supposed. Every one knows that between the nostrils is a vertical partition dividing these cavities, and called the *septum.* On either side and at its outer wall, the nose possesses three curious twisted, scroll-like or shell-like bones called *turbinated bones*, which lie horizontally from back to front. They divide each nostril practically into three compartments or cavities; while out of these cavities open others. Of these latter receptacles, one on each side opens into the upper jaw-bone; while another on each side leads to the frontal or forehead bone. Communication also exists in the same way between the nose and other bones (sphenoid and ethmoid) of the skull. We must not omit to note also that, as the nostrils are the drainage-tubes of the eye, a canal leads the tear-secretion, which passes from each eye, downwards into the nose.

In a side view of the nose, we should find the three

"turbinated" or scroll-like bones lying one above the other, with the openings to which reference has been made between them. The interior of the nose is lined by a thick membrane, allied to that which lines the mouth, and, therefore, forming a *mucous membrane*. But a peculiarity of the nose-membrane (apart from its physiological uses in the exercise of smell) is found in the fact that it is very richly supplied with blood-vessels, the walls of which are of thin structure. It is the upper part of the nostril only, which is supplied with the nerves of smell; the rest of the cavity possesses another function or use, and that is to act as a distinct channel for communication with the lungs. The nose thus appears before us as in reality the true breathing-organ. The purpose served by its having its lining-membrane so richly supplied with blood-vessels is readily found, in that the air which passes over this membrane *is warmed before it is allowed to pass to the lungs*. This fact, together with another, namely, that the lining-membrane of the nose is abundantly supplied with the same constantly moving filaments (called *cilia*) found in the lungs, proves that the nose is, therefore, the natural breathing-canal. It is by the nose, and not by the mouth, that nature intends we should inhale the air necessary for breathing. Received by the mouth, it is not warmed as when we inhale it by the nose; and it is also probable that the cilia of the nose act as strainers, in the way of filtering the air from dust-particles—an action certainly not performed when we breathe by the mouth.

How, may we ask, does this view of matters (which, of course, is Mr. Catlin's) look when regarded from the standpoint of medical and other knowledge? Simply that all our experience points to the correctness of the practice of nose-breathing as opposed to mouth-breathing. There is great hygienic wisdom in the advice to "shut your mouth."

It is easy to build up proofs of the advisability of taking Mr. Catlin's lesson well to heart. Primarily, what do we observe in respect of the breathing of the lower animals? The answer is that they are decidedly nose-breathers. We may omit the case of the young whale and kangaroo, in each of which there is formed practically a closed canal leading from the nose to the lungs, thus rendering the young animal, in the act of suckling, altogether independent of the mouth for breathing. Something of this kind is also seen in the adult whale. But if we have regard to such a familiar animal as the horse, we may notice an excellent example of nature's method of nose-breathing as opposed to mouth-breathing. For the horse emphatically respires by his nose; and there is certainly no animal whose respiratory arrangements require to be of more perfect kind than the horse. Watch an over-driven horse if we will, and we shall note the panting, dilated nostrils, *but the mouth is closed*. A painter depicting a horse in the act of rapid movement shows us the expanded nostrils; and, in truth, we are all familiar with this feature in the animal, although its significance may not hitherto have struck us. The lesson we learn from comparative anatomy then, is that we should breathe through the nose and shut the mouth, save when we speak or eat.

But what applies to the lower form may not apply to man. This is a legitimate contention enough; but it fails in the case before us. For, while it may be admitted, perhaps, that man is given to use his mouth (*i.e.*, for speaking) much more extensively than is the lower animal, and while, doubtless, this has given rise to the habit of mouth-breathing, yet man's mouth and nose-structure is essentially that of his lower allies; his lungs are modelled on the same plan as theirs, and his breathing acts are similarly performed. Therefore, it is but fair to infer that the natural mode of breathing is that by the nose; and we find support for our views in the fact that savages invariably use the nose as a respiratory channel.

Mr. Catlin is strong on this point. He says there is no animal save man which sleeps with the mouth open. He argues that as man is fitted for a life under very varied exigencies of climate, there is all the more reason why he should protect himself from lung-troubles by the habit of nose-breathing. The savage infant, Mr. Catlin reminds us, "like the offspring of the brute breathing the natural and wholesome air, generally from instinct, closes its mouth during its sleep." Again, he remarks that the poor Indian woman "watches her infant and presses its lips together as it sleeps in its cradle"; and "an Indian child," we are informed, "is not allowed to sleep with its mouth open from the very first moment of its existence."

I wish I might reproduce in this article the drawings with which Mr. Catlin has adorned his pages, showing how we look with our mouths shut and with our mouths widely open during sleep. Fortunately, we all know the ridiculous appearance each one of us exhibits when, during sleep, the mouth gapes; so that there is little need to depict the familiar and ludicrous position. Yet, it is worse than ludicrous, for it is the cause of much ill-health. No doubt the breathing of unheated air by the mouth is the cause of lung-troubles, to avoid which a respirator is employed. If people would only reflect that the nose is the natural respirator, and that it is also a "patent air-heater and filter" of Dame Nature's own contriving, we should not find them closing their mouths with the ugly and useless gauze-appliances so commonly in vogue.

I was much struck, on perusing Mr. Catlin's book, with a remark he makes on the decay of the teeth, which ensues from the habit of mouth-breathing during sleep. He instances the horrible dryness which ensues from the open mouth as a cause of various ailments, among them toothache and neuralgia; and remarks that the mouth, like the eye, is intended to be perpetually moistened with liquids. Curiously enough, a surgeon-dentist has been ventilating similar views within the past few weeks, and my readers will find a paragraph on the subject in HEALTH No. 358, p. 309. It is interesting to find that Mr. Catlin had so long anticipated the dentist's remark, and had drawn attention to the value of the closed mouth as preservative of the dental apparatus.

That medical men are practically at one with Mr. Catlin in recommending nose-breathing as the natural practice is a familiar fact. It may, however, be well to clench the matter by a quotation or two from the work of two specialists in throat and voice training. I refer to Mr. Lennox Browne and Herr Behnke. In their work on "Voice, Song, and Speech," they remark that "Since nature has provided, in the nostrils, an apparatus both for warming and filtering the air, it is important that this passage should be used, and that it should be quite open and unimpeded. Nasal breathing is also desirable, because the muscles of the mouth and throat to be used in articulation must not be fatigued by unnecessary and contrary actions."

In another passage these authors say that, "As Dr. Elsberg remarks, 'The natural mode of quiet breathing is through the nose; mouth-breathing is an acquirement. A new-born infant would choke to death if you closed its

nose; it does not immediately know how to get air into the lungs through the mouth until after, by depressing the tongue, you have once made a passage for it.'"

Speaking again of breathing, Messrs. Browne and Behnke tell us that "Mouth-breathing is a pernicious and dangerous practice, which frequently leads to diseases of the respiratory and of the vocal organs, and which ought to be discarded as much as possible. In singing, as well as in speaking, it is, unfortunately, sometimes unavoidable, but not by any means so often as is generally supposed. The fact may be new to many people that it is not necessary to shut the mouth in order to inhale through the nostrils; nor even, as advised by some professors of elocution, to raise the tongue until it touches the roof of the mouth. The air has simply to be drawn through the nostrils. This causes the palate to fall, thereby uniting the nasal passages with the throat, which is all that is necessary, and the process is easily carried out in practice."

The end of the matter is, that as the nose is the proper breathing channel, we should use it in respiration. The popular habit, unfortunately, is to employ the mouth. Hence result a whole variety of ills and ailments such as I have specified. There is a mine of wisdom in Mr. Catlin's advice, "Shut your mouth."

THE CHEMISTRY OF THE HOUSE.

(SECOND SERIES.)

By Dr. Drinkwater, F.C.S.,

Lecturer on Chemistry in the Edinburgh Medical School.

SEVENTH PAPER.

THE PLANTS IN THE WINDOWS.

The colour of a plant grown in light is green, and by the use of certain solvents the green colouring matter can be extracted from plants. If, for example, we take some green leaves and crush them and shake them up with some ether, the solution assumes a green colour owing to the power of the ether to dissolve the colouring matter of the leaves. This substance is known as *chlorophyll*, and is only formed in plants grown in light. Keep a plant in the dark and it has no green colour, the bleaching of celery is a very good example of such a plant; it is banked up with earth to exclude the light, and the stems in consequence are devoid of green colour. It is through the agency of the chlorophyll that important chemical changes are brought about. Carbonic acid gas is absorbed by the chlorophyll and decomposed, the carbon being retained in the plant, and the oxygen being given off in the free state; and this action only takes place in light, and in direct proportion to the amount of light, it ceasing altogether in darkness or at a very low temperature.

A very simple experiment will prove this action. Take a few green leaves, freshly plucked, and put them in a glass of water inverted in a soup-plate or saucer containing water, so that the water does not flow out, and place the whole arrangement in sunlight. Very speedily the leaves will become covered with bubbles of gas, which will gradually detach themselves and collect at the top of the vessel, displacing the water; and with a little skill this gas may be tested with a glowing match and proved to be oxygen. The carbon then being retained, we must next see what becomes of it. It is not retained as black carbon, but as soon as separated it is united to the water, and we get compounds made up of carbon chemically combined with water in varying proportions, forming a set of bodies known as carbohydrates, of which sugar, starch, and gum are familiar examples.

Now, the oxygen given off by plants is equal in amount to the carbonic acid decomposed, so that we might imagine the action to be a very simple one; but in reality it is much more complicated, for it has been proved that some of the water is decomposed also, and oxygen liberated from it. The general facts, however, remain that oxygen is given off, and that carbon combined with water remains as carbohydrates; but the exact nature of the changes produced in the chlorophyll cells is at present unknown. Of all the carbohydrates which may be formed starch, perhaps, is the first produced. But starch is insoluble, and useless as such to nourish the plant, but by further chemical change it is made to combine with more water and is turned into a form of sugar, which is conveyed by the sap to more distant parts of the plant for the purposes of nourishment. In time it reaches some younger part of the plant where plant-growth is active and where new cells are constantly being formed, and here the sugar is converted into starch or into cellulose, that fundamental tissue of plants, the substance which forms cell-walls and wood.

The changes from starch to sugar and from sugar to starch or cellulose are readily understood by the chemist, for they are all carbohydrates, all consist of carbon and water; and, however much they may differ in properties, both physical and chemical, they only differ in composition in the proportion of carbon and water. Carbohydrates, however, are not the only substances formed in plants. There are nitrogenous principles produced as well, substances termed albumenoids, which are valuable both to us and animals as nourishing food; substances composed of carbon, hydrogen, oxygen, and nitrogen, but in which the oxygen and hydrogen are not in the proportion of water. These nitrogenous bodies are formed in all probability by the action of the carbohydrates on some of the simply nitrogenous bodies absorbed from the soil, but the exact method of formation is very obscure. Sometimes the nitrogen forms bodies termed alkaloids, which possess the medicinal properties of the plant in a concentrated form. Quinine from the cinchona plant, and strychnine from the nux vomica are common examples of alkaloids.

There is a very popular notion that it is not safe to have plants in a room at night, because the processes we have just been describing are reversed, and that instead of carbonic acid gas being absorbed it is given out. There is a certain amount of truth in the statement, but it is not true in the fullest sense. At all times there is a process of respiration going on in plants, respiration similar in every respect to the respiration of animals previously described, viz., taking in oxygen and giving out carbonic acid. We will call this respiration of plants and the reverse process assimilation. These two processes go on side by side, and respiration is taking place constantly in all living cells without exception, but the oxygen so absorbed is not used to build up tissue, but, as in animals, to burn it up. So that plants form tissue by assimilation, and this tissue is again removed by respiration; but assimilation proceeds at a much greater rate than respiration, except, perhaps, in germinating seeds; and the result is that the plant is constantly gaining. Respiration goes on both by day and night, whilst assimilation only takes place during the day; so that during the day the slow and sluggish respiration is almost hidden by the more active chemical changes involved in assimilation, whilst during the night when assimilation is dormant, the respiratory action is more visible. It is, therefore, no

more dangerous to keep plants in a room during the night than during the day. Now, oxygen absorbed for the purposes of respiration acts as an oxidizing agent, just as it does in our bodies, oxidizing the carbon, producing carbonic acid, which is of course given off; but some other oxidized products are left in the plant—a portion of the carbohydrates, for example, are converted into vegetable acids by oxidation. The sour taste of unripe fruits is due to the presence of these acid bodies.

From all that has been said regarding the assimilation process, it will be seen how important it is to our general health that we should have plenty of growing plants, and will explain how the planting of trees helps to improve the sanitary condition of a district. To show how much carbonic acid can be removed from our atmosphere by growing plants, it has been calculated that a forest of one acre in extent, producing in the year 5,755 pounds of dry material, will absorb the carbonic acid produced by a little over fifteen men. Again, 2,500 gallons of air contain about one gallon carbonic acid gas, and we can now understand why trees have such a number of leaves constantly moving in the air, and exposing as large a surface as possible to absorb it.

There are some plants which are never green, such as mushrooms and other fungi, broom rape, &c., and these, of course, contain no chlorophyll. How, then, can they assimilate carbonic acid, seeing that the whole process depends on this green colouring matter? Well, broom rape and other parasites feed on the juices of plants to which they attach themselves, and do not trouble to get food for themselves; and fungi procure their carbon from the decayed and decaying vegetable matter in which they grow. A walk through any plantation will show you that most fungi grow at the roots of trees, feeding on the decayed leaves which collect there.

One more function of leaves, and we have done with them. They are constantly giving off water (in moist weather) by evaporation, from their surface and through their stomata, or minute openings. It is this evaporation which sucks up the fluids from the root and causes the rise of sap. The evaporation of water also concentrates the solution of nutritive material in the localities where it is to be used. The amount of water so given off is very large. It has been calculated that three to five million pounds of water are given off from one acre during the growth of a crop.

We have looked upon the root as only absorbing watery solutions; but there are many substances found in plants, substances which must have been absorbed from the soil, and which, from their nature, can hardly have been in solution in the soil itself. Sand, for example, is taken up by the root, and is not soluble to any extent in water. Phosphoric acid, again, is present in the soil, and in an insoluble form, but yet the root takes it up. We can only explain this by admitting that the root has the power of attacking these insoluble matters and rendering them soluble; and, of course, if it has the power, it will dissolve and absorb a number of substances which are not required for the growth and nourishment of the plant. What becomes, then, of these non-essential substances? They at first accumulate in the sap, in which they may be detected, and ultimately find their way to the surface of leaves and stems, to which they either attach themselves or are removed by successive showers of rain. The shiny deposit of silica, or flint, on the stems of wheat and barley is a very good example of this. The silica has all been absorbed from the sandy portion of the soil; but not being required for the use of the plant has found its way outwards, and is at length deposited on the stem.

Insoluble lime salts are found deposited in the cells of plants in the same way, and are known to botanists by the name of *raphides*. They are very well seen in the garden rhubarb, which contains crystals of oxalate of lime. We never find any of these non-essential constituents in the seed, so that although the chemical constituents of the same plant may vary according to the soil in which it is grown, the composition of the seed is constant. Different species of plants require different kinds of food, so that whilst one crop will remove one ingredient from a soil, it requires a different plant to remove another. This has been described as the "selective power of plants"—not a very happy term, all things being considered. Beans and peas, for example, *select* lime from the soil; potatoes, potash; and cereals and plants in which the seed is well developed, phosphoric acid, as their principal food ingredient.

Our article would be incomplete unless we considered the chemistry involved in the germination of the seed. The seed, besides containing the germ of the future plant, has a store of plant-food secreted in it, to serve as nourishment, until root and leaf are formed, and able to fulfil their proper functions. This food is present in various forms. Linseed, for example, contains a large amount of fatty matter; wheat and barley contain starch; but they all contain some albuminous principles and phosphoric acid. When a seed is buried in soil three things are necessary for its growth—moisture, oxygen, and a certain temperature, varying according to the nature of the seed. It is useless to bury a seed too deeply in the soil, and equally so in a too dry soil. In the first place oxygen cannot get to it, and in the second place the seed cannot swell to allow of the necessary chemical changes to take place in its substance. But under suitable conditions the seed swells, oxygen is absorbed, the temperature rises, showing oxidation to be taking place, and carbonic acid gas is produced at the expense of the carbonaceous substances.

Whilst these changes are proceeding, the insoluble food in the seed is gradually becoming changed into soluble matters; and the carbohydrates are being converted into sugar, serving to nourish the incipient root and seed leaves, which latter rapidly increase in size, and at length emerge through the coats of the seed. These speedily assume the appearance and functions of the adult plant, and commence and carry on the life-history which we have sketched.

Invisible Ink.—M. E. Pecard has published an account of this chemical discovery. It is a mixed acid procured by a solution of molybdic acid in boiling oxalic acid. He calls it oxalomolybdic acid. The crystals of this acid are insoluble in strong nitric acid, but they dissolve in cold water. Paper written upon with the solution shows nothing in a weak light, but when brought into the sunshine the written characters suddenly appear in deep indigo blue. Paper saturated with the solution and dried in the dark becomes blue when exposed to the sun, and on this blue surface white characters may be written by dipping the pen in water. The colour disappears in contact with water, and the blue writing becomes black when exposed to the heat of a fire.

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Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

WORRY.

We have it on the authority of one of the first psychologists of the day that "pleasurable emotions increase the amount of gastric juice secreted," the opposite effects being produced by depressing passions. Dr. Beaumont found in the man with the fistulous opening into the stomach that anger or other severe mental emotions would sometimes cause its inner or mucous coat to become morbidly red, dry, and irritable; occasioning, at the same time, a temporary fit of indigestion. No doubt it has been the misfortune of a goodly number of our readers to have eaten meals under the pressure of great trouble or anxiety, and to have felt how tasteless and innutritious they were under such circumstances; and how the stomach was altogether incapable of digesting and assimilating the food presented to it. This, in a greater or less degree, is one of the injurious consequences of worry. It attacks the very foundation of our physical well-being. It is not work which kills men so much as worry. The former brings perfect rest, and, as the great poet says, "Seals up the boy's eyes, and steeps his senses in forgetfulness;" but the latter steals the sleep away.

Most people are aware that the blood is the prepared fuel of the living machinery, of which the mind is the constructor and controller; and that food is the raw material out of which that fuel is fabricated by a beautiful and complex process. Work quickly causes food to be taken up from the stomach, and passed on at once by the blood to the tissues to nourish them. It hastens the removal of the products of wasting and decay from the system; it hurries from the body the ashes of life.

Now the action of sorrow, anxiety, and worry is to derange and obstruct the whole of this beautiful and important process; and the result is most disastrous. You might as well attempt to build a house of cubes of soft, moist clay, as to construct, or rather re-construct, the human body with undigested food. Dyspepsia is a disease whose pains are relentless and unmanning, and whose consequences are grievous to be borne. In most cases, consumption, cancer of the stomach, ulcer of the stomach, and (in infants) rickets, scrofula, and general wasting are preceded by dyspeptic conditions, for which Science, with her mystic fingers, ever reaching out in all directions, has but recently discovered a remedial agent.

Pepsin, a digestive ferment, obtained from the calf, sheep, or pig, is manufactured in such a state of purity that two or three grains are sufficient to digest a whole meal. Thus when the stomach, from one cause or another, is incapacitated for its normal work, Pepsin Tabloids, each of which contains a grain of this potent principle, are indicated. They are agreeable to take, reliable in action, and as they are packed in small oval bottles, can be carried about in the waistcoat pocket. From one to three of these may be taken after a meal. Men of business, people of sedentary habits, &c., are the greatest sufferers from dyspepsia, brought about by mental anxiety and disquietude, an unnatural strain being imposed upon the faculties by the universal desire to become rich. And of all the glittering bubbles we pursue, there is none so fragile and evanescent, none so utterly illusory.

One of the greatest rarities to be met with is a man who is at once very rich and very happy. The happiest people are generally those who, while cultivating habits of prudence and forethought, desiring only a comfortable independence, are indifferent to the accumulation of wealth, and addicted to simple pleasures and homely entertainments; who cherish a wholesome aversion to ostentatious hospitality and ceremonious display; who select their friends on account of their sterling character, and never think of inquiring how much they are worth.

We meet with many such people who are not merely hale and hearty at eighty, but retain something of their youthful freshness of feeling and warmth of heart.

". . . . My age is as a lusty winter,
Frosty, but kindly."—*As You Like It.*

On the other hand, many a man whose energies are concentrated upon building up a colossal business, or on amassing a princely fortune, breaks down and drops into the grave before he has reached the *grand climacteric*.

We know of some London merchants who look back from the midst of their opulent surroundings upon the struggles and straitened circumstances of their less prosperous days, and acknowledge that they had experienced no enjoyments like those which had to be purchased by the exercise of a little preliminary self-denial; that life's simplest pleasures are the best, and that "the game" which they had successfully played for wealth was really "not worth the candle."

"Give me neither poverty nor riches" was the desire of the wisest of men, and will have a good prospect of fulfilment to all when just social conditions and ambitions prevail.

DIGESTION.

By Wesley Mills, M.D.
Professor of Physiology in McGill University.
(Concluded.)

Up to the present we have assumed that the changes wrought in the food in the alimentary tract were identical with those produced by the digestive ferments as obtained by extracts of the organs naturally furnishing them. But for many reasons it seems probable that artificial digestion cannot be regarded as parallel with the natural processes except in a very general way. When we take into account the absence of muscular movements, regulated according to no rigid principles, but varying with innumerable circumstances in all probability, the absence of the influence of the nervous system determining the variations in the quantity and composition of the outflow of the secretions; the changes in the rate of so-called absorption, which doubtless influences also the act of the secretion of the juices—by these and a host of other considerations we are led to hesitate before we commit ourselves too unreservedly to the belief that the processes of natural digestion can be exactly imitated in the laboratory.

What is it which enables one man to digest habitually what may be almost a poison to another? How is it that each one can dispose readily of a food at one time that at another is quite indigestible? To reply that, in the one case the digestive fluids are poured out and in the other not, is to go little below the surface, for one asks the reason of this, if it be a fact, as it no doubt is. When we look further into the peculiarities of digestion, &c., we recognize the influence of race as such, and in the race and the individual that obtrusive though ill-understood fact—the force of *habit*, operative here as elsewhere. And there can be little doubt that the habits of a people, as to food eaten and digestive peculiarities established, become organized, fixed, and transmitted to posterity.

It is probably in this way that, in the course of the evolution of the various groups of animals, they have come to vary so much in their choice of food and in their digestive processes, did we but know them thoroughly as

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[An Extract from "The Monthly Homœopathic Review," May 1st, 1870.]

By Dr. TUTHILL MASSY.

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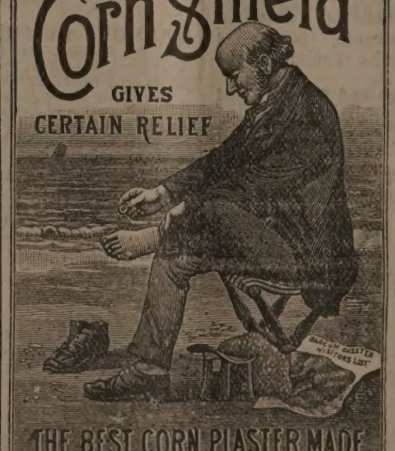

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they are; for to assume that even the digestion of mammals can be summed up in the simple way now prevalent seems to us too broad an assumption. The field is very wide, and as yet but little explored.

The study of Alexis St. Martin has furnished probably the best example of genuine human physiology to be found, and has yielded a harvest rich in results.

We suggest to the student that self-observation, without interfering with the natural processes, may lead to valuable knowledge; for, though it may lack some of the precision of laboratory experiments, it will prove in many respects more instructive, suggestive, and impressive, and have a bearing on medical practice that will make it telling. Not that we would be understood now or at any time as depreciating laboratory experiments, but we wish to point out from time to time how much may be learned in ways that are simple, inexpensive, and consume but little time.

The law of rhythm is illustrated, both in health and disease, in striking ways in the digestive tract. An individual long accustomed to eat at a certain hour of the day will experience at that time not only hunger, but other sensations, probably referable to secretion of a certain quantity of the digestive juices and to the movements that usually accompany the presence of food in the alimentary tract. Some persons find their digestion disordered by a change in the hours of meals.

It is well known that defecation at periods fixed even within a few minutes has become an established habit with hosts of people; and the same is to a degree true of dogs, &c., kept in confinement, taught cleanly habits, and encouraged therein by regular attention to their needs.

Now and then a case of what is very similar to regurgitation of food in ruminants is to be found among human beings. This is traceable to habit, which is bound up with the law of rhythm or periodic increased and diminished activity.

Indeed, every one sufficiently observant may notice in himself instances of the application of this law in the economy of his own digestive organs.

This tendency is important in preserving energy for higher ends, for such is the result of the operation of this law everywhere.

The law of correlation, or mutual dependence, is well illustrated in the series of organs composing the alimentary tract.

The condition of the stomach has its counterpart in the rest of the tract: thus, when St. Martin had a disordered stomach, the epithelium of his tongue showed corresponding changes.

We have already referred to the fact that one part may do extra work to make up for the deficiencies of another.

It is confidently asserted of late that, in the case of persons long unable to take food by the mouth, nutritive substances given by enemata find their way up to the duodenum by antiperistalsis. Here, then, is an example of an acquired adaptive arrangement under the stress of circumstances.

It cannot be too much impressed on the mind that in the complicated body of the mammal the work of any one organ is constantly varying with the changes elsewhere. It is this mutual dependence and adaptation—an old doctrine, too much left out of sight in modern physiology—which makes the attempt to *completely* unravel vital processes well-nigh hopeless, though each accumulating true observation gives a better insight into this kaleidoscopic mechanism.

We have not attempted to make any statements as to the quantity of the various secretions discharged. This is large, doubtless, but much is probably reabsorbed, either altered or unaltered, and used over again. In the case of *fistulæ* the conditions are so unnatural that any conclusions as to the normal quantity from the data they afford must be highly unsatisfactory. Moreover, the quantity must be very variable, according to the law we are now considering. It is well known that dry food provokes a more abundant discharge of saliva, and this is doubtless but one example of many other relations between the character of the food and the quantity of secretion provided.

We have from time to time either distinctly pointed out or hinted at the evolutionary implications of the facts of this department of physiology. The structure of the digestive organs, plainly indicating a rising scale of complexity with greater and greater differentiation of function, is, beyond question, an evidence of evolution.

The law of natural selection and the law of adaptation, giving rise to new forms, have both operated, we may believe, from what can be observed going on around us and in ourselves. The occurrence of transitional forms, as in the epithelium of the digestive tract of the frog, is also in harmony with the conception of a progressive evolution of structure and function. But the limits of space will not permit of the enumeration of details.

A very brief *résumé* of the subject of digestion will probably suffice.

Food is either organic or inorganic, and comprises proteids, fats, carbohydrates, salts, and water; and each of these must enter into the diet of all known animals. They must also be in a form that is digestible. Digestion is the reduction of food to a form such that it may be further dealt with by the alimentary tract prior to being introduced into the blood (absorption). This is effected in different parts of the tract, the various constituents of food being differently modified, according to the secretions there provided, &c. The digestive juices contain essentially ferments which act only under definite conditions of chemical reaction, temperature, &c.

The changes wrought in the food are the following: Starches are converted into sugars, proteids into peptones, and fats into fatty acids, soaps, and emulsion; which alterations are effected by ptyalin and amylopsin, pepsin and trypsin, and bile and pancreatic steapsin, respectively.

Outside the mucous membrane containing the glands are muscular coats, serving to bring about the movements of the food along the digestive tract and to expel the fæces, the circular fibres being the more important. These movements and the processes of secretion and so-called absorption are under the control of the nervous system.

The preparation of the digestive secretions involves a series of changes in the epithelial cells concerned, which can be distinctly traced, and takes place in response to nervous stimulation.

These we regard as inseparably bound up with the healthy life of the cell. To be natural, it must secrete.

The blood-vessels of the stomach and intestine and the villi of the latter receive the digested food for further elaboration (absorption). The undigested remnant of food and the excretions of the intestine make up the fæces, the latter being expelled by a series of co-ordinated muscular movements essentially reflex in origin.

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The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

CONSTIPATION IN INFANTS.

By John Doring, M.D.

(Continued.)

Constipation is often made more obstinate by the infant's own efforts to delay relief. A baby who is habitually constipated soon becomes cognizant of the suffering which inordinate distension of the anus entails, and resists the desire to evacuate the bowel so long as it is within his power. The pain is sometimes aggravated by the presence of little fissures or excoriations about the anus caused by the over-distension of this part of the bowel. The irritation from these fissures excites spasmodic contractions of the sphincter muscle—the muscle which controls the lower end of the bowel—forming an additional impediment to free evacuation.

In the still more severe forms of constipation, due to some obstruction in the bowel, the above-mentioned symptoms are present, but become intensified as relief is deferred, and the fæces may, in extreme cases, even be regurgitated through the mouth. In these serious cases the physician is summoned after the ordinary domestic remedies have been resorted to without effect.

The constipation due to brain-troubles and opiates is sometimes most obstinate, often resisting powerful purgatives, and in the latter case may only yield when the effects of the drug have passed off. A child that is being dosed with opium is very apt to be somewhat drowsy while under its influence.

In the case of imperforate anus, the attention of the nurse and physician is directed to the infant's condition by the absence of the usual dark coloured stools (meconium) on the napkins.

Although, as has been previously remarked, an infant does not necessarily suffer any injury by the want of a daily evacuation, still evil consequences are encountered with sufficient frequency to warrant a brief allusion to this part of the subject. The continual distension of the bowel by large fæcal masses is liable to produce a paralytic state of the gut, and thus favour the continuance of the constipation, or render its cure more difficult.

The presence of hard masses in the intestine may set up an intestinal catarrh, which will interfere with the infant's digestion and exert a deleterious influence on his general health. Sometimes typhlitis—an inflammation of the head of the large intestine—originates from the same cause. Occasionally a small particle of inspissated fæces becomes lodged in a little offshoot of the large bowel, called the vermiform appendix, causing inflammation and abscess. This complication is, however, very rare in babies. A deterioration of the health is said to result from the absorption of some of the poisonous elements of retained excrement.

The severe straining that attends the evacuation of the bowels in the constipated subject is liable to produce a prolapse of the rectum—*i.e.*, the lower end of the bowel is forced outside of the body, or, to use a popular expression, "the seat comes down." Children who are not very vigorous are especially predisposed to this accident. This straining is also a not uncommon cause of rupture (hernia), either at the navel or in the groin.

Considering the manifold causes of constipation, it is evident that its management does not consist in the mere occasional or routine administration of purgatives or the use of clysters. The cause of the trouble should in every case, if possible, be discovered, before any particular line of treatment is adopted; for a measure that would be successful in one case might prove inert or harmful in another.

Because of a popular belief among the laity that a baby's bowels can be influenced through the breast milk, it is not uncommon to find a nursing mother partaking largely of such articles of diet as are known to have a laxative effect on herself, or dosing herself with cathartic medicine, with the expectation of producing a similar effect upon her baby. A word in regard to this fallacy. It is true that there are a few things, particularly drugs, which, when taken by the mother, affect the character of the mother's milk. It is also undeniable that after a nursing woman has eaten a large amount of fruit or taken a dose of some cathartic medicine her baby's bowels may become loose. But, when such is the case, it is generally a mere coincidence. The laxative effect of both fruit and medicine on the mother is due to the irritation of either article on the lining membrane of the intestinal canal. The acids in the fruit do not enter the mother's circulation, but become converted into alkaline carbonates during the process of digestion, so that this popular but inefficient method of treating constipation in the infant had better be discarded.

Attention to the baby's food is of the utmost importance. Regular intervals of feeding must be observed, whether at the breast or on the bottle. Until the third month one nursing every two hours is sufficient; from the third to the eighth month one in three hours; from the eighth to the twelfth month, one in four hours. Between nursings the baby should have some cool water to drink, from a couple of teaspoonfuls to a wineglassful or more, according to age. I would like to emphasize this point particularly in cases where the stools are hard and dry. In warm weather, when a large amount of water is removed from the body in the form of perspiration, babies suffer acutely from thirst unless water be supplied them freely. At such times the urine is liable to be scanty and high coloured, and leave a red deposit on the napkin.

The quantity and quality of the mother's milk should be looked into. If the milk be scanty the mother's health should receive attention. Too frequent nursing, by not allowing the breasts time to fill up, will make it appear that there is insufficient milk, when in reality such is not the case. This fact is worth remembering. If the milk contains too much casein, as indicated by the milk being very white and thick instead of blue and watery looking, a few teaspoonfuls of water should be given before each nursing. A piece of loaf sugar may often with benefit be dissolved in the water when this alone does not, after a reasonable length of time has elapsed, overcome the constipation. Brown sugar is more effective than the white. A half to a whole teaspoonful of molasses given once or twice a day may in some instances be substituted for the sugar. When sweets of any kind are given their effects must be carefully watched, for they are liable to ferment in the alimentary canal and give rise to irritation.

Oatmeal gruel made thin and strained, to which is added a pinch of salt, given once or twice a day, or before each nursing, will generally regulate an infant's bowels. If the baby be bottle fed the gruel should be mixed with the milk in the bottle. Raw oatmeal water should not be given to a constipated baby, as it has a decided tendency to aggravate the existing evil. Barley

broth, arrowroot, corn starch, and starchy "baby foods" should also be withheld from a constipated infant under five months old, and only given in small quantities after this age.

Gruel made of Graham flour instead of oatmeal is often very serviceable.

The following has been recommended:—

Take one quart of bran meal; tie it up in a pudding-bag so tight as to get a firm, solid mass; put it into a pot of water early in the morning, and let it boil till bed-time; then take it out, and let it dry. In the morning peel off from the surface and throw away the thin rind of dough, and with a nutmeg-grater grate down the dry, hard mass into a powder. Of this, from one to three teaspoonfuls may be used by first rubbing it into a paste with a little milk, then adding to it about a pint of milk, and finally bringing the whole to just the boiling point. It must be given through a nursing-bottle.

A teaspoonful of malt extract or maltine added to the contents of the nursing-bottle sometimes does good. The addition of two or three teaspoonfuls of cream to each feeding, or every second or third feeding, is in some cases indicated. A meal of beef tea or veal broth once a day will regulate some children's bowels.

After the twelfth month a little fruit may be permitted, as the soft part of a well-baked apple, or ripe and juicy peach, orange or prune juice, and the effect closely observed. Bananas, raw apples, and the like should be excluded from the baby's diet.

When the child becomes old enough to eat soft food there is less difficulty in regulating the bowels. Coarse breads, as Graham or rye bread, Graham or oatmeal crackers, a tablespoonful of fine bran heated in a cup of milk and poured over ordinary white bread, an occasional piece of good molasses cake or old-fashioned molasses candy, are all excellent.

Under the head of diet, I would like to say a word about cod liver oil; for it is, in reality, not a medicine, as is generally supposed, but a food.

If rickets—a very common malady among bottle-fed and improperly nursed babies—exist, and such a mild form of the affection may be present that only the experienced physician can detect it, or if the baby does not thrive, notwithstanding the absence of any fault in the diet, particularly one among whose ancestors there is a history of consumption, cod liver oil should be given. It seldom fails to produce a marked improvement in the general condition of the infant, and at the same time has a salutary effect on the bowels. For a baby from four to eight months old, it is well to begin with half a teaspoonful of the pure oil three times a day, and gradually increase the dose until in the course of a few weeks a full teaspoonful is taken. Should the initial dose not be tolerated by the stomach, begin with a smaller quantity, even if it be but three or four drops. When any dose of the oil has too decided an effect on the bowels, it should be reduced but not discontinued.

Dirty children are said to thrive; but, as a matter of fact, they do not. So baby's daily bath should never, unless for some very good reason, be omitted, summer or winter. It is often the case that as the cold weather approaches, the baths are reduced to one or two a week, because the mother is afraid of the baby catching cold—the very thing to make the baby susceptible to colds. The bath, when judiciously used, acts as an invigorator to the whole body, the bowels included. In the hot weather baby should be allowed to splash around in the cold water a couple of times a day, if he enjoys it. In the cold season the bath, of course, must be warm, and the whole body rubbed quickly with a sponge or wash-cloth wrung out of cold water before applying the towel. This produces a healthful reaction.

A HINT TO MOTHERS.

RECENTLY a case was reported in which a child was found to be suffering from a very intractable form of skin-disease, marked by what was evidently a most irritating form of eruption. All attempts to cure the infant were, for a long time, futile. The skin-irritation affected the child's health, and affected its development in a serious manner.

The parents at last consulted a physician of great skill and experience. After ascertaining that there was no hereditary disease present, and that the skin-trouble appeared to be of purely local nature, the physician inquired into the domestic arrangements of the parents, in so far as the care of the child was concerned. These were found to be of excellent nature, and to include the usual application of powder. The physician remarked that he would require to see the powder. The mother assured him it was perfectly pure and wholesome. "Of that," replied the doctor, "I must be the judge."

The powder, on being examined, was found to be singularly impure. It was a coarse, common powder, apparently of foreign make, and contained mineral impurities such as fully accounted for the child's ailment. This case conveys a grave lesson to mothers and nurses. A powder known to be pure, and guaranteed to be of harmless nature, as well as of soothing kind, should alone be used for either infants or adults. On these grounds Vinolia Powder is now alone used in well-regulated nurseries, and is alone employed by all who value the health of the skin. It is recommended by many physicians, and especially by those who have made skin-ailments a speciality.

THE NUTMEG IN MEDICINE.—Many familiar culinary substances have been found to have valuable medicinal properties, at least in household therapeutics; but the nutmeg, so far as we are aware, has not been among the number. Its turn has now come, however, for Dr. J. O. Shoemaker tell us that it is useful in the treatment of summer diarrhœa, many cases yielding readily to doses of half a drachm administered in milk. Insomnia is said to be effectually relieved by it when opium has failed and chloral is objectionable. In delirium tremens it can be employed with safety and benefit, when any other sedative would be dangerous. For itching and irritable piles an ointment of two drachms of powdered nutmeg, one drachm of tannic acid, and one ounce of lard, is an excellent application. Powdered nutmeg may be administered in doses of from two to ten grains for children, and from ten grains to two drachms for adults. Larger doses have produced profound coma, lasting for hours.

CATARRH, CATARRHAL DEAFNESS, HAY FEVER.—A NEW HOME TREATMENT.—Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness, and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N.B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of 2½d. stamp to pay postage, by A. H. Dixon & Son, 337 and 339, West King-street, Toronto, Canada.—*Christian Advocate.*

Sufferers from catarrhal troubles should carefully read the above.

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"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."

—*Charles Mackay.*

SOME FACTS CONCERNING CHLOROFORM AND ALLIED SUBSTANCES.

By JOHN CROWELL, M.D.

THE earliest attempts to deaden pain, under the ordeal of surgical operations, date back to the Roman Empire. In the year 1800, Sir Humphrey Davy advocated the use of nitrous oxide gas as an anæsthetic, as follows: "As nitrous oxide, in its extensive operation, seems capable of destroying physical pain, it may probably be used with great advantage during surgical operations in which no great loss of blood takes place." It was not until 1844 that the use of this agent showed any practical results, when Thomas Wells, a dentist of Hartford, Conn., had a tooth extracted while under its influence. Since that time this compound has been extensively used in dentistry, but its effects are too transient for operations in capital surgery.

The introduction of ether as an anæsthetic into the practice of surgery formed a most interesting epoch in the history of medical science, completely revolutionizing the methods once in use, and introducing to operative surgery a range of delicate manipulation that is the marvel of our generation. The writer recalls the prejudice existing in the minds of some of the most noted surgeons, in his student days, against the use of ether, even after its safety had been demonstrated by repeated experiments in the hands of Drs. Morton, Warren, and Jackson, of Boston. It was not until 1850 that the conservatism of the Pennsylvania Hospital yielded to the inevitable, in the use of ether; and while Pancoast and Mutter were operating successfully in the Jefferson College under its influence, Gilson and Fox were holding on the old method of stupefying by opiates.

The safety of the popular anæsthetics, ether and chloroform, is so well established as to need no advocacy of their claims, and when in competent hands, under proper conditions, their use may be pronounced as generally harmless.

Ether was first administered for a surgical operation in Boston, October 17th, 1846, by Dr. T. G. Morton, the operation being performed by Dr. Warren. On September 30th of the same year Dr. Morton had used the agent successfully in extracting a tooth. For a long time a controversy was sharply waged between Dr. Morton and Dr. Charles J. Jackson, as to the title to the honour of the discovery of the wonderful anæsthetic; but the general verdict is, that to Dr. Morton belongs the honour of having first used ether in a surgical operation. On January 19th, 1847, Dr. Simpson, of Edinburgh, first used ether to mitigate the pangs of labour. On November 10th of the same year a new anæsthetic was introduced by Simpson. At the suggestion of Mr. Waldo, a chemist in Liverpool, he tried chloroform, and soon after published a treatise, giving his success with this powerful agent.

The medical profession was thus armed with these two potent anæsthetics, and the blessed effects of painless operations were soon apparent. Chloroform, being much more powerful in its action, soon almost displaced ether, and, except in the city of Boston and in Lyons and Naples, was the only anæsthetic used for several years. The frequent fatal results following the free use of the agent resulted in awakening a fear, and very soon modifications were devised by various medical authorities. In London a mixture was recommended by the Medico-Chirurgical Society, called A. C. E., consisting of one part of alcohol, two parts of chloroform, and three parts of ether. The Vienna mixture consists of six parts of ether to one of chloroform. It is stated that in eight thousand administrations of this mixture but one fatal result is recorded.

Inquiry among medical men in different sections of the country reveals the relative use of the two anæsthetics. Throughout New England ether is generally used. In the great cities of New York, Brooklyn, and Philadelphia, containing three millions of people, but half a dozen surgeons use chloroform only, a few more use the mixture, and the rest the ether. In the West the use of ether prevails, while in the South chloroform is more generally used. A change has recently occurred in the hospitals of Great Britain where chloroform was used extensively ten or fifteen years ago. About one-third of the surgeons now use a mixture, and one-third the pure ether, the other third holding on to the chloroform. In France, except Lyons, chloroform is the sole agent used, and the same is the case in Germany, except at Vienna, where mixtures are used.

It is difficult, by figures, to state accurately the relative safety in the use of these two anæsthetics. Of the 500 deaths from chloroform, the number of administrations is not given, and all attempts to fix a ratio are futile. In one hospital one death occurred with 525 administrations, while in 28,000 examples of its use in the Confederate army, and in 40,000 administrations seen by Nussbaum, not one fatal result followed. These examples present the extremes. The chief danger attending the use of chloroform is in its action upon the heart. Under its use the blood pressure and the great and sudden irregularities of the heart's action are known to occur, and the term "capricious" has been applied to the action of that organ under the influence of chloroform. There are several inducements for the use of this agent which have rendered it popular in the hands of some operators. Among these are its pleasant taste, its concentrated form, and the quickness of its action. In contrast with ether, the chloroform has also marked advantages. The vapour of ether is inflammable, sometimes igniting at a distance of fifteen feet, thus rendering its use dangerous by artificial light. But the relative danger of the two agents, as indicated above, must be considered, and exercise the controlling influence in choosing between them.

One of the most popular and humane uses of anæsthetics is found in their application to the diseases peculiar to women. Under their influence the most wonderful operations in laparotomy have been made possible, and the results in the relief from suffering and in the radical cure of disease are among the triumphs of modern surgery. It has already been stated that the use of ether to mitigate the pangs of labour was introduced to the medical profession by Simpson, of Edinburgh, on January 19th, 1847, when he published a paper giving the results of his experience in natural labour. This treatment met with stout opposition from the conservative element of the profession, and for a long time it found little favour among some of the leading obstetricians, among whom were Meigs of Philadelphia, Barnes, Montgomery, and Ramsbotham in England, and Seebold and Scanzini in Germany. But in 1853 the great influence of Queen Victoria was given in its favour by the submitting of her

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SAVING WHAT

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DELICIOUS FLAVOR and AROMA

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DRINK FOR A PRINCE

at less than a farthing a cup.

Majesty to its use in the birth of Prince Leopold, and again in 1857 at the birth of Princess Beatrice. The result of this notable example did much to make the use of anæsthetics popular in parturition.

The power and rapidity in the operation of chloroform have made it an agent for criminal purposes, and its use in this respect has formed an important chapter in legal medicine. The reported use of this agent in cases of assault upon women or of an excuse for robbery must be received with a great deal of caution, and a physician in giving testimony should be careful to consider the conditions necessary for its successful administration. The medical expert, understanding as he does the physiological action of the drug, will be able to instruct a jury as to the possibilities in the given case, and thereby further the ends of justice.

The question as to whether chloroform can be successfully administered during sleep without awakening the person has long been discussed. It is an important question, and it is possible that, with great caution and under the most favourable circumstances, the act can be accomplished. But such cases must be of rare occurrence, and, except with children who sleep very soundly, very improbable, if not impossible. Impregnating the air of a sleeping-room with the vapour of chloroform, for the purpose of robbery, is sometimes reported in the public press as a successful operation; but such an occurrence is highly improbable, inasmuch as the quantity of fluid required to produce complete anæsthesia, in a room of ordinary size, would be two and a half pints, and success could then only be doubtful, except in a room perfectly air-tight.

Local anæsthesia for the performance of minor operations is frequently adopted, both by the freezing process of Dr. Arnott, and by the use of hydro-chlorate of cocaine. The uses of this drug were discovered by noticing the benumbing effects of the coca leaves when chewed by the natives upon the table-lands of South America. The discovery of this agent was hailed with delight by the medical profession, and in delicate operations upon the eye its use is highly important. The inducing of local anæsthesia upon the skin by the use of the cocaine has not been very satisfactory. In the form of hypodermic injections it has been found useful in removing small growths, and in more difficult operations the injection of the drug has proved effectual. No doubt further experiment will develop still further uses of this potent agent in the wide range of minor operative surgery.

SWEEPING WITHOUT DUST.—At a time when we are pretty well convinced that one of the aids to preserving health is to prevent the scattering of dust and dirt into the air, loaded, as it is apt to be, with organic particles of dubious origin, the little invention known as the Ewbank Carpet Sweeper has an obvious value. In the ordinary methods of sweeping a room a great deal of the accumulated surface dust is dispersed into the air to be inhaled, or slowly to settle again on walls and furniture till it is removed by dusting or by currents of air. The Ewbank Carpet Sweeper collects all the dust into the annexed trays as it is rolled over the floor. It has the advantage of being noiseless and used with little muscular effort, and is distinctly useful in the sick-room as well as efficient. It is solid, simple, and is very light in use. This substitution for the time-honoured broom will be a distinct improvement from many points of view. The manufacturers are Messrs. Entwisle & Kenyon, Ewbank Works, Accrington.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sydney.*

A Californian Borax Lake.—Borax was at one time considered to be a rare element, and at a comparatively recent date was selling at £90 per ton, its chief use being for glazing high-class pottery. It is now, however, very plentiful and very cheap, and is found to be useful for a great variety of purposes. In the early part of the present century borax was only obtained from the North of India and Tibet. Later on Italy became practically the sole source of the world's supply, until Peru added its quota of borax to the market. Finally, we have some very extensive deposits in America; so that borax, instead of being an element of rare occurrence, as was once supposed, is found to be widely spread over different parts of the world. One of the most remarkable of the American deposits formed the subject of a recent paper read by Mr. C. Napier Hake, F.I.C., before the Society of Chemical Industry. This borax deposit, which was carefully examined by Mr. Hake, is a dry salt lake, situate in San Bernardino County, California, 450 miles from San Francisco. It lies in the valley of the Slate Range and Argus Mountains, at an elevation of 1,700 feet above sea level. It is of oval form, and measures respectively about twelve miles and eight miles at its longest and widest points. The under portion of the lake is one vast deep bed of black mud, which is for the most part covered with a hard saline incrustation of varying thickness, the surface consisting of a white efflorescent matter. The lake yields bicarbonate of soda, common salt, and borax; the soda and salt deposits, however, possess no commercial value. The borax deposit occupies the northern portion of the lake, and when the crude efflorescent surface has accumulated to about the depth of an inch, it is loosened by shovels and swept into wind-rows, sufficient space being left between the rows to allow of the passage of a cart. When cleared of these salts the surface commences to renew its coating, the moisture being evaporated by the sun. This action is allowed to go on for three or four years before the surface is again disturbed. The crude material is carried by carts from the wind-rows to the factory, which consists of a dissolving house, a concentration house, a refining house, and a boiler house. The process of extracting the borax from the crude material consists simply in dissolving the latter and allowing the solution to crystallize. The crude material is first passed through a mill, and then placed in the dissolving-pan, which contains a boiling saline solution. The solution, with the raw material in it, is kept boiling for a certain time, and is then allowed to stand and clarify, after which it is run off into crystallizing-pans and allowed to cool. The product of this first crystallization is a slightly impure borax, the refined borax being produced by redissolving the first product and cooling the resulting solution down to 120 deg. Fahr., and removing the crystals. The works are capable of turning out over 100 tons of borax per month, about fifty men and sixty-five animals being

CHEMICAL ANALYSIS.—DR. DRINKWATER, Lecturer on Chemistry in the Edinburgh Medical School, undertakes the Analysis of Water, Foods, Wall-Papers, and of all other products and articles connected with Household Health and Commercial Interests. Terms on application to Dr. Drinkwater, Chemical Laboratory, 41, Chambers-street, Edinburgh.

employed. The refined borax is packed in casks and transported to Mojave, a station on the Atlantic and Pacific Railway, over a good wagon road seventy-two miles in length. It is carried in a so-called "desert schooner," which is a strongly-built ten-ton wagon drawn by twenty mules. The lake has been regularly worked for the last fifteen years under the direction of Mr. J. Searle, the chief owner.

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London Fog: its Cause, Effects, and Treatment.—Every dweller within or near the metropolitan area must sympathize with Dr. Alfred Carpenter in his laudable endeavour to explain the causes and consequences of London fog, and to suggest an effectual remedy. After due inquiry, founded on careful physical and chemical observations, he concludes that the essential character of this inconvenient phenomenon has nothing to do with river vapour, but is almost wholly due to chimney smoke. The very colour of the familiar shroud, its opacity, density, and diurnal prevalence, its incidence in the absence of a low barometric register, and its fickle conformity to every change of wind—all point, he tells us, to but one conclusion. His observations, moreover, are supported by microscopic evidence. Particles of unconsumed carbon and globules of oily hydrocarbon are easily detected on slides exposed for a time to the murky atmosphere. Chemistry contributes its quota of evidence by revealing not only a marked deficiency of oxygen, but an excess of carbonic and of sulphurous acids. It seems, therefore, pretty clear that the true nature of the city spectre has not in this case been mistaken. As regards consequences to health, Dr. Carpenter ascribes to the properties above-mentioned a somewhat prominent share in the production of chest disorders and a resulting increase in mortality statistics. By way of compensation, however, though not in excuse of the evil, we are reminded that another source of mischief—namely, sewer-air—is in great measure shorn of its hurtful influence by meeting in fog-air with a fairly potent purifier. Two blacks, however, do not make a white, and the disinfection of drain impurities, attainable, as it is, by other methods, will hardly justify our neglect to abolish if possible the lung-irritating action of air overcharged with carbon. This brings us to the question of a remedy. In dealing with this matter, Dr. Carpenter's fertility of resource is not wanting. He proposes the imposition of a heavy tax on all fireplaces which do not consume their own smoke; the compulsory employment where coal continues to be burnt of a comparatively smokeless fuel, which, moreover, is to be subject to a special duty; and finally, the use of gas of low illuminating power, and at the cost of 2s. to 2s. 3d. per 1,000 feet for cooking and heating purposes. There is no doubt that these proposals, if carried out, would go far towards removing from us the worst elements of the too familiar fog. It is, however, extremely improbable that the public mind, if consulted, would agree to any such sweeping enactments as those suggested. As matters now stand, the use of gas-stoves, admirably designed alike as to cleanliness, freedom from odour, and heating power, is daily increasing. The taxation of household grates and of coal, as advised, we fear, would still be premature. There is better hope of success from the introduction of its remedial counterpart—a system of improved smoke-consuming fireplaces—though we can see no reason why steps should not be taken to enforce the very reasonable provisions of the Smoke-Abatement Act in the case of manufactories.—*Lancet*.

Our Bookshelf

"Reading maketh a full man."—*Bacon*.

SLEEPLESSNESS.

Insomnia and its Therapeutics. By W. A. MACFARLANE, M.D., &c. (London: H. K. Lewis. 1890.)

A BOOK like this is certain to attract readers, not only among the medical profession, but also among the public. Insomnia, or sleeplessness, is a frequent ailment in itself, and it is also a symptom of many other affections. This fact alone would give it prominence among the list of topics to which the public mind is directed; but it also receives a due meed of attention because it is an annoying condition, presumably susceptible of cure, but proverbially difficult to ameliorate. Of late days increased attention has been paid to insomnia, and, as a result, a vast number of new soporifics, or sleep-producing drugs, has been placed on the druggists' lists. If our author's remark, that insomnia has received "but scant notice in any text-book of medicine," be correct as regards the past, it certainly does not apply to the present state of matters, since, as we have noted, even lay periodicals discuss, with freedom, the causes and cure of the want of sleep. Dr. Macfarlane has, however, been impressed with the apparent neglect of the subject, and accordingly he has marshalled his facts and opinions in a bulky volume, of which the clearness of type is at least one not unimportant character and merit.

His introductory chapter on the Physiology of Sleep is disappointing, in that it contains nothing that is new. No one of the many views the author details "can be accepted as settling the subtle problem." He reviews most of the opinions regarding the cause of sleep, and remarks of Brown-Séquard's inhibitory theory, as well as of the theory of "sleep by suggestion," that they "appear to be quite untenable." Dr. Macfarlane, in our opinion, is somewhat too sweeping in his criticism here. The inhibitory theory of sleep has much to commend it to physiologists; and surely, when he admits that, as yet, we cannot place our finger on the exact cause of sleep, it is somewhat rash to dogmatize and declare any rational view of its nature "untenable." In the succeeding parts of the book the treatment of the topic is all that could be desired. The author leads us from "General Remarks on Insomnia" to its causes depending on nervous affections, upon those of the digestive system and of the liver. Gout—that fashionable disorder, which on its broad back bears so many of the sins and faults of man's erring frame—is also regarded in the light of sleeplessness; while the affections of heart and lungs, fevers, urinary ailments, and conditions peculiar to females are also duly treated from the standpoint of their relations to insomnia. An appendix on baths and electricity, in relation to the treatment of sleeplessness, is given at the end of the book.

Dr. Macfarlane's style is, on the whole, clear and pleasing. His meaning is always made patent; and while the mass of details he presents to the reader is often apt to prove confusing, yet the volume thereby becomes enhanced in value as a text-book which treats the topic in an exhaustive manner. In one respect our author is to be highly commended—namely, for the clear details he gives regarding the treatment of the various conditions he describes. His prescriptions are always plainly given, and we are of opinion that he has added somewhat to the therapeutics of his subject. He wisely tells us that hydrate of chloral should only be employed under medi-

cal advice. Paraldehyde is safer, but the system soon becomes habituated to its use. Bromidia "has in several instances been found reliable"—in our opinion it is a safe and excellent preparation; and sulphonal is regarded by Dr. Macfarlane as "a real addition to the list of hypnotics." Probably, however, the author knows that sulphonal exhibits certain peculiarities of action, as Field has lately shown. It is slow to act, and requires to be given from one to two hours before bedtime; while, if the sleep is disturbed, a hazy and lethargic state may persist for the rest of the day. One good point, however, about sulphonal is that in frequent use its dose may be diminished. A person who begins with fifteen grains may obtain sleep later on with ten to five grains; and this in itself is a valuable enough result. Of urethrane and hypnone, Dr. Macfarlane says that they are less reliable than the preceding substances.

Our author will be found very full and complete in his details of the treatment of sleeplessness by ordinary methods apart from drugs. He tells us that "it is not desirable to sleep in a room containing plants of any kind." While perhaps it is, on the whole, better that a bedroom should not be turned into a miniature conservatory, we can assure Dr. Macfarlane that if his remark is meant to imply danger to the sleeper from growing plants, he must modify his opinion to be consistent with scientific fact. It is true that green plants exhale carbonic acid gas at night, but the amount is so extremely trifling, that it can make no appreciable difference to the atmosphere of a room; while probably the exhaled gas is reabsorbed by the plants.

Speaking of alcohol, the author, as a physician of large experience, remarks that no hard-and-fast rule can be laid down regarding the employment of stimulants as narcotics. He reminds us that a full-blooded or plethoric person will "do best without alcohol in any form; while the anæmic are often benefited by a moderate quantity taken with food to promote digestion, and a 'nightcap' of whisky or brandy with warm water and sugar. For centuries," he continues, "the hypnotic effect of alcohol, in combination with sugar and nutmeg, has been recognized, strong ale and nutmeg being a favourite form for its administration. In this connection, it is interesting to note that Horace, in his 'Satires,' gives an excellent prescription of Trebatius' for this form of insomnia; it is as follows: "'Anointed let them swim the Tiber thrice who require a deep sleep; let them also have their bodies saturated with wine at night'— a combination of stimulant with exercise."

On the whole, Dr. Macfarlane's book may be regarded as having supplied a gap in medical literature. Moreover, he has filled the hiatus pleasantly and skilfully, and to the medical practitioner the volume under notice should therefore be welcome, and should find a permanent place on the bookshelves of the faculty.

Fifth Edition.—Now Ready.—Greatly Enlarged, and completely Revised.

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"A Lecture to Young Men on Purity of Life and the Preservation of Health." By A Graduate. Price One Shilling, or post-free, 1s. 1d., from Henry Renshaw, Medical Publisher, 356, Strand, London, W.C.

This pamphlet, now being issued in its Fifth Edition, forms a complete refutation of quackery of all kinds, and is a safe and reliable guide, from the medical standpoint, to all young men. Every Youth should read this pamphlet as a guide to the safe conduct of life in a moral and physical sense.

IMPORTANT ANNOUNCEMENT.

A NEW VOLUME BEGAN WITH THE NUMBER FOR FRIDAY, OCTOBER 4th, 1889.

BONUSES TO SUBSCRIBERS TO "HEALTH."

Health, as our readers are aware, may be obtained of all Booksellers and Newsagents, and at the Railway Bookstalls, on the day of publication. It may also be ordered from the Publisher, 2, Paternoster-square, London, E.C., who will send the journal, post free, for a year, on receipt of postal orders for 10s. 10d.

As many of our readers who live in remote districts prefer to obtain Health from the Publisher direct, and as we are desirous of increasing the already large number of subscribers who give us a yearly order for the journal, we offer the following Free Gifts and Bonuses to all who subscribe to Health for one year or longer:—

(1.) To each Subscriber who remits 10s. 10d. to the Publisher, entitling him (or her) to receive one copy of Health, post free, for one year, we shall present a copy of Dr. Andrew Wilson's work, entitled "A Manual of Health Science" (Longmans & Co.), value 2s. 6d.

(2.) To each subscriber who remits 21s. 8d., entitling him or her to receive two copies of Health weekly, post free, for one year (or one copy for two years), we will present Dr. Richardson's "Ministry of Health" (Chatto & Windus), value 6s. The copies of Health so ordered may be posted to separate addresses.

(3.) To each person who subscribes 32s. 6d., for three copies of Health, post free, weekly, for one year, we will present the volume by Dr. Richardson mentioned above, and also the handsome, illustrated book entitled, "Studies in Life and Sense," by Dr. Andrew Wilson (Chatto & Windus), value 6s.—being a free gift of the total value of 12s.

The bonus last mentioned will also be presented to anyone who succeeds in obtaining three yearly subscribers to Health, and who remits to the Publisher the sum of 32s. 6d., together with the names and addresses of the persons to whom the copies are to be posted each week.

As the literary gifts above-mentioned constitute books containing solid and reliable information regarding health and other matters of popular scientific interest, it will be seen that the above scheme, while intended to increase our already large circulation, also offers distinct advantages to new subscribers who guarantee by their subscriptions a year's support to this journal. All communications regarding subscriptions and other purely business details connected with Health should be addressed directly to the Publisher, 2, Paternoster-square, London, E.C., and *not to the Editor*.

The Largest Railroad Station in the World.—The largest railroad station in the world is at Bombay, India. Ten years were taken in its construction, and its cost ranges far up into the millions. A colossal statue, representing Progress, crowns the central dome. In the interior of the structure is another large statue of Queen Victoria, surrounded by allegorical figures representing Science, Art, Industry, and Commerce. Marble ornaments and wood carving have been extensively introduced. The building was completed and given up to service a short time ago.

Special Notice.—The best stimulant for dietetic and other purposes is the "Skerryvore" (Registered) Blend of Fine Matured Scotch Whiskies, certified of the utmost purity by Mr. E. G. Clayton, F.C.S., Member of the Society of Public Analysts. Sold only by John Twatt, 36, Argyle-place, Edinburgh. Price 20s. per gallon, bottles and cases included.—[Advt.]

Sanitary Appliances, Etc.

THE "RATIONAL" CORSET BODICE.

In these days of dress reform, ladies will feel interested in the "Rational" Corset Bodice, made by Messrs. Sharp, Perrin & Co., 31, Old Change, London, E.C. This bodice exhibits in itself all the convenience and grace of an easy-fitting corset. It fits the body exactly, on account of its yielding nature, while all injurious pressure is avoided. For children and growing girls it is specially adapted. It can be washed readily, and is a decidedly inexpensive article—a feature which, with its durability, will commend it very fully to the notice of our lady readers. This corset largely relieves the hips from the weight of the skirts. Its buttons are practically undetachable, and the presence of shoulder-straps keeps the corset well adjusted in its place, and hygienically acts, as above noted, in relieving the pelvis from the weight of the skirts. For ladies of all classes the "Rational" Corset Bodice appears to us to present a thoroughly sensible dress appliance. To its use no dress reformer can for a moment object; on the contrary, it must secure the approval of all who desire to see "that tight waist" reformed and abolished, and who also wish to encourage the development of healthy and non-distorted frames.

TOBACCO AND INSANITY.—The essay recently read before the San Francisco Medical Society by Dr. Shiels, on tobacco and its effects, was one deserving of exceptional credit, as well for the thoroughness of his investigations as for the general fairness of his conclusions. The doctor addressed a series of questions to the members of a leading New York medical society individually, and upon their answers his deductions are mainly based. The general trend of the decisions of this medical tribunal is that smoking in excess is bad, which few will be found to dispute. The question, "Have you ever seen a case where the brain was permanently affected by the use of tobacco?" elicited a symphonious chorus of noes all along the line, disturbed only by the solitary demurrer of an ex-asylum superintendent, who claimed five cases of insanity due to the weed. Dr. Shiels believes there must have been some error of diagnosis here, and beyond a doubt the large majority of asylum physicians would, if canvassed, sustain him in his scepticism. It is only in a remote and subsidiary sense that the tobacco habit can be considered a factor in the production of insanity. Its opponents urge that it promotes nervousness. This depends on the individual and the amount indulged in. They also claim that it weakens moral fibre, impairs nutrition, fritters away a man's time, and induces a host of other evils. But it is not upon the brain that the penalties of its immoderate use are visited; the organs more likely to suffer are the heart, stomach, and throat.

Our Letter-Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 2, PATERNOSTER-SQUARE, LONDON, E.C. *Those intended for the Publishing Office to be sent to* MR. A. P. WATT, THE PUBLISHER, *at the same address.*

RULES FOR CORRESPONDENTS.

OWING to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the LETTER-BOX DEPARTMENT of HEALTH, to the following rules:—

1. All questions are answered free of charge in the columns of HEALTH. A limited space only, is available for the insertion of replies each week.
2. All letters must be legibly addressed to "The Editor of HEALTH, 2, Paternoster-square, London, E.C.," *and to no other address.*
3. Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of HEALTH. A stamped addressed envelope must accompany all queries to which a private reply is desired.
4. Addresses of physicians and surgeons will, as heretofore, be forwarded FREE to Correspondents on their enclosing a stamped addressed envelope for reply.
5. Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.
6. From the necessity of sending HEALTH to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.
7. No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.

NOTICE TO WRITERS OF ARTICLES.—All articles sent to the Editor of HEALTH must be accompanied by stamps to ensure their return in case of rejection. It must be distinctly understood that the Editor and Proprietor do not hold themselves responsible for the loss of rejected communications.

LETTER TO THE EDITOR.

WEAVER'S PERIODATE CRYSTALS.

SIR,—In further illustration of the uses and efficacy of the new antiseptic, "Periodate Crystals" (Weaver's), I send you notes of a few more cases:—

1. Scarlatina.—Called in to A— J—, aged seven, on 18th Jannary. Temp. 103 degs.; tonsils much swollen; no rash; gave Quinia Sulph. four grains at once, and Tr. Aconite, one minim every half hour. 19th, temp. 104 degs.; pulse 156; all symptoms worse; throat looking very bad; rash fully out; stopped Aconite, and gave Periodate Solution (1 in 500), ten minims every two hours in water. 20th, temp. 100⅗; pulse 112; throat much better; able to swallow much more easily; same evening (*i.e.*, thirty-six hours after beginning Periodate) the temperature had fallen to 99, and the rash was fading rapidly. 21st, patient convalescent; eating fairly well; and wanting to get up. The desquamation was comparatively slight, though sufficiently well marked for diagnosis.

2. Obstinate diarrhœa; adult twenty-eight. Had influenza, which was followed by diarrhœa for three weeks. After trying various remedies, including Carbolic Acid, without success, gave Periodate five grains internally and fifteen minims of the Solution every four hours. Diarrhœa ceased within twenty-four hours, and the patient had a healthy stool without griping the following day.

3. Severe scald of arm; was dressed with Carron Oil in the usual way. After two days there was considerable discharge of pus and the wounds looked unhealthy. Dressed with Periodate Solution the arm soon assumed a healthy appearance and the sores to granulate. In several other cases of minor injuries the healing properties of the Periodate Solution have been well marked, and two more cases of chronic gleet yielded rapidly to the same agent, especially when used internally as well as locally. I have jotted down these few cases in the hope of inducing those who have more opportunities than myself to give the salt a trial and to report on its merits.—I am, &c.,

CECIL D. GREENWOOD, M.R.C.S., L.S.A.

Campbell House, Clapham-common, S.W.

QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL

[Readers of HEALTH will kindly note that when back numbers of the journal are desired, the letters containing such requests and stamps for the numbers should be addressed to the PUBLISHER of HEALTH, 2, Paternoster-square, London, E.C., and *not to the Editor.*]

ROMANCE.—You may try the lotion ordered to "Separens" in HEALTH No. 358.

IGNORAMUS.—You simply suffer from a want of assimilative power. Try a little stout with your food, or a glass of good claret; and after your meals take fifteen drops of Fer Bravais in water.

ANXIOUS MOTHER.—Try the pills ordered to "Tomboy" in the present number, and give hot hip-baths at bedtime. If these means fail to relieve the case in a few days, consult a physician.

FLORENCE.—The symptoms indicate that there is some unusual strain on the system, either of mental or physical kind. We advise you to modify your vegetarian dietary, and to take meat soups and milk and puddings made with eggs. It is just possible the diet you take is too rigorous for you. We also advise you to rest as much as possible, and to take the Fer Bravais as ordered to "Ignoramus" above. If this advice does not relieve you, then consult a physician, as only a personal examination of your case can aid you if the above remedies fail to effect a cure.

J. A. C.—Attend to Rule 4 to Correspondents, if you desire address of a physician you may consult. You might practise the exercise you name twice a week at least with advantage.

ALEX. SMALL.—We should say that the use of Stern's Pumiline Essence, added to hot water, in an inhaler, and used thrice daily (or oftener), would cure your symptoms; only you must confine yourself to the house while undergoing this or any other treatment. Smoking Marshall's Cubeb Cigarettes (to be had of any druggist) and bringing the smoke down the nostrils is an admirable remedy for slight colds in the head. Brace up your system with a dessert-spoonful of Scott's Pure Cod Oil Emulsion, taken after meals, thrice daily.

O. F. R.—Attend to Rule 4 to Correspondents if you desire the address of a physician. Use Vinolia Soap regularly for washing, and try the lotion ordered to "Jim A. S." in last week's HEALTH. Avoid much flesh-food in your dietary, and take plenty of vegetables and stewed fruits.

W. WALTERS.—1. Apply to Mr. Forsyth, 16, Renfield-street, Glasgow, and wear his "Hygienic" Underclothing. This, with the addition of the ordinary garments, will suit you admirably. 2. Forsyth's Summer Wear. 3. Rest after meals, and attend strictly to your digestion and food. 4. Collis Browne's Chlorodyne; twenty drops in water for a dose. 5. Impossible to affect such growth; better to shave regularly for a time, and try what this will do. 6. You are quite in error as to the situation of the kidneys, which lie in the small of the back. What you name may be relieved by rubbing Stern's Pumiline Liniment into the part night and morning.

CHLOROSIS.—We do not know for certain; but should think it most probable that massage is practised there. Apply to the Medical Officer of Health for information.

SAILOR.—You have not persevered long enough with the treatment ordered you. Continue it yet awhile. Cases like yours are not cured or improved in a day. Let us hear how you are in a few weeks' time. As you are near the sea, take your tepid bath of salt water every morning.

VIC.—What do you expect to follow when you place yourself in the position to which you refer? You suffer from no disease, and the effects you name are only those of excitement. Read the "Lecture to Young Men" (post free, for 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.), and note what it says regarding health-rules. What you name can have no possible effect on your friend.

F. W. CORDT.—Read the pamphlet "A Lecture to Young Men" (post free, for 1s. 1d., from Renshaw, 356, Strand, London, W.C.), and you will find full directions for treatment in its pages. You ought to wash the parts daily, and, therefore, soap and water is the cure for what you complain of last in your letter.

SCOTT.—You suffer from no disease as the pamphlet you have read tells you; therefore, it is absurd to talk of "recovery." If you will simply neglect what you name, and occupy your thoughts with healthy subjects (taking care as to your diet) you will soon recover your tone. It is your mind, needlessly excited, and not your body, which is at fault.

T. W. Y.—See and follow advice given to "F. W. Cordt" above.

IRON.—Use an injection, once or twice daily (for a week or so), composed of a teaspoonful of Condy's Fluid, added to half a tumbler or so of tepid water. What you name will disappear in time. Avoid constipation by noting the diet-hints given to "E. Grimshead" in the present number.

W. J. T.—If you can afford the cost of the treatment, we should say by all means give it a fair trial; and we shall be obliged by your letting us know full particulars of its nature and efficacy, should you decide on trying it. Be guided entirely by your own feelings in the matter.

SHOEMAKER.—The following lotion will probably cure you: Bicarbonate of soda, one drachm; glycerine, an ounce and a half. Mix. Apply the lotion after washing with Vinolia Soap. If this lotion does not cure your ailments, substitute for it the following: Pulv. calamin. ver., two drachms; pulv. oxid. zinc, one drachm; glycerine, one drachm; aquæ camphor ad., six ounces. Mix. Label "For external use only."

BLACKSMITH.—Use an eye-lotion made by adding one grain of the sulpho-carbolate of zinc to an ounce of rose water, and get your chemist to make up six ounces of this lotion. Dilute at first with an equal part of tepid water, and use twice or thrice daily.

ANXIETY.—Address your inquiry to Hamilton & Co., publishers, 376, Argyle-street, Glasgow, sending six stamps for the details (see advertisement in our pages). We shall be glad to hear how this cure suits the case. Kindly let us know, and if not cured, we will advise again.

CAMPBELL.—1. A natural change occurs in the colour of the hair in many persons. There is no accounting for it. 2. See advice given to "Oarsman" in last week's HEALTH.

J. FITZHENRY.—Your question is much too wide to be readily answered. Briefly, you should take your exercise before breakfast, taking a cup of milk or cocoa first, however; after your work is over, a walk of three or four miles will be sufficient. The rate of three and a half to four miles per hour is quite fast enough. As regards diet, take our advice and make no change in your food. You will enjoy cycling itself best if you avoid all attempts to race or to beat records. Take the exercise quietly and moderately. You should have at least eight hours' sleep; and in summer a cold sponge bath each morning will act as an excellent tonic-measure.

PERPLEXED.—In such a case, follow the advice given to "Tomboy" in the present number. A hot hip-bath should be taken at night, but cold and chill should be avoided. The diet should be light but nourishing. If not bettered, write again.

S. E. B.—1. Apply to the Medical Battery Co., 52, Oxford-street, London, W., and you will have full information afforded you on the point you name. 2. There is no danger at all in the operation. 3. Over 60 per cent.

BUNTER'S NERVINE

Cures TOOTHACHE Instantly.

Prevents Decay, Saves Extraction. Sleepless Nights Prevented. Neuralgic Headaches and all Nerve Pains removed.

Dr. ANDREW WILSON, F.R.S.E., &c., writing in *Health*, says: "'BUNTER'S NERVINE' has stood the most severe test. For many years it has been the favourite household Remedy for TOOTHACHE and kindred ailments of NEURALGIC character. It contains nothing of a deleterious nature, and should claim an honoured place in every family medicine chest."

BUNTER'S NERVINE. Sold by all Chemists, 1/1½.

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IS THE MOST SIMPLE AND PERMANENT STOPPING for DECAYED TEETH.

Any one can easily prepare and place it in the cavity of the Tooth in a soft state, and in a short time it becomes a perfectly hard and white Enamel, forming, as it were, a part of the original substance of the Tooth.

All Chemists, 1/6. *Post Free*, 19 *Stamps, by Proprietor.*

PURILINE Tooth Polish

Will Purify and Beautify the Teeth with a Pearly Whiteness; Polish the Enamel; Destroy Tartar and all Living Germs; and Keep the Mouth in a Delicious Condition of Comfort, Health, Purity, and Fragrance. It is not a Powder or Soft Paste that will scatter over clothing and soil the toilet, but a Dental Paste of stiff consistency, non-gritty, and Absolutely Pure. May be carried in the pocket in any climate of the world, without injury or losing its virtues.

Price 1/- *Sold by Chemists, Perfumers, &c., or sent post free by Proprietor.*

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FOR THE TEETH, GUMS, AND BREATH.

A PURE, PERFECT, AND REFRESHING FLUID DENTIFRICE.

A few drops in water used daily will thoroughly Cleanse, Beautify, and Preserve the Teeth; Polish the Enamel, prevent Tartar, Destroy all living "Animalcule." It is Absolutely Pure and Harmless to the Youngest child or most delicate constitution.

Sold by all Chemists, Perfumers, &c., 1/- *per Bottle, or sent post free by Proprietor*

Proprietor: ALFRED WILSON, 422, Clapham-road, London, S.W.

C. PARKS.—Stern's Pumiline Preparations (advertised in our pages) will afford you certain relief. You suffer from winter cough. Inhale at night the vapour of hot water to which a little Pumiline Essence has been added, and rub your chest with Stern's Pumiline Liniment. Cover the chest after rubbing with wool or flannel. The Pumiline Jujubes will relieve the throat-irritation. After your meals take a dessertspoonful of Scott's Cod Oil Emulsion, thrice daily.

ANATTO.—1. Mellin's Food should be given regularly. It is non-farinaceous, and as such, well adapted for an infant of the age named. 2. Glycerine is to be preferred.

B. YOUNG.—1. Horsford's Acid Phosphate certainly. Use it as directed on the bottle. 2. Use Rowland's Kalydor after shaving. 3. You mean "barber's itch."

TOMBOY.—Have a pill prepared containing one grain permanganate of potash, to be made up with Kaolin. Take one of these pills thrice daily after your food, and let us hear the result after a brief trial of this remedy.

ANGELUS.—A face-powder is made as follows: Oxide of zinc, three drachms; powdered starch, three ounces; carmine, one drachm; otto of roses, four minims.

K. S.—If acidity is present, you may try the following: Subnitrate of bismuth, six grains; carbonate of magnesia, ten grains; powdered gum arabic, twenty grains. Mix to form a powder. Stir in a cup of boiled milk, and, when cool, stir up again before being swallowed. To be taken twice dai y after food.

Tired Brain

Horsford's Acid Phosphate,

A brain food. It increases the capacity for mental labour, and acts as a general tonic. It rests the tired brain, and imparts thereto new life and energy.

Dr. ED. T. JOHNSON, M.R.C.S., 121, Rice-lane, Walton, Liverpool, says: "I have used it with very good results in cases of overtaxed and overworked brains, one in particular, a schoolmaster, where it acted like a charm."

Dr. JNO. LAMBE, M.R.C.S., West Villa, Shurdington, No. Cheltenham, says: "It produced good results in sick headache and brain prostration, tranquillizing the irritation, giving comfortable sleep."

Descriptive pamphlet post-free on application to
Rumford Chemical Works,
Providence, R.I., U.S.A.

Beware of Substitutes and Imitations.

CAUTION.—Be sure the word "Horsford's" is printed on the label. All others are spurious. Never sold in bulk.

E. SMITH.—Try the effect of the following pill: Powdered ipecacuanha, half a grain; powdered capsicum, one grain; powdered rhubarb, two grains; extract of gentian, three grains. Six such pills to be made, and one to be taken half an hour before dinner when there is any liver irritation.

LABURNUM.—The following is a cough mixture which will suit you: Chlorodyne, one drachm; ipecacuanha wine, one drachm; syrup of squills, one drachm; glycerine to make up two ounces. Label: "A teaspoonful in a little water at intervals."

AGILIS.—Take Cascara Cordial in doses of twenty drops in water, between meals, once or twice daily. Eat Dahl's Cakes, Scott's Oat Flour, stewed fruits, vegetables, and whole-meal bread; and avoid tea and coffee.

TROUBLED ONE.—A cure for tapeworms is as follows: Take no food for eight hours; then in the evening take the following draught: Extract of male fern, thirty minims; powdered gum acacia, one drachm; peppermint water, one ounce; make an emulsion. Next morning take a full dose of castor oil, and about midday a large plate of mashed potatoes. The minute head of the worm is the part which requires to be brought away. Repeat the treatment if any symptoms of the worm should show themselves at a subsequent period.

ANDREW SETH.—Try the following as a likely preventive of the boils: Sulphide of calcium, twenty-four grains; sugar of milk, half an ounce. Mix well, keep in a stoppered bottle, and take as much as will cover a sixpence every four hours. Take a dose of Lamplough's Pyretic Saline in the morning occasionally.

E. GRIMSHEAD.—Take, for a time, twenty drops of Cascara Cordial in water once or twice daily, an hour before your food. Take Grant's Scotch Oat Flour night and morning in place of tea, &c. Stewed fruits and vegetables may also be taken by you, and Dahl's Cakes will be found most useful likewise. By such a system of diet, and with moderate open-air exercise daily, together with a cold sponge bath each morning, you should recover.

DANGER

HEED THE NOTE OF WARNING
BEFORE IT IS TOO LATE.
LOOK OUT FOR THE DANGER SIGNAL.

In churches and public assemblies half the people are coughing, and where the constitution is weak, or there is an hereditary taint, the seeds of Consumption are sown. Stop it at once, or it may get beyond control. You need

SCOTT'S EMULSION

ALMOST EVERYBODY NEEDS IT.

In the autumn, after the enervating months of the summer, the system requires just the heating and fatty properties of the Oil combined with the bracing and tonic properties of the Hypophosphites.

IT IS A MARVELLOUS FOOD MEDICINE,
IT WILL CURE YOUR COUGH,
HEAL THE SORENESS OF THE LUNGS,
GIVE YOU STRENGTH & FORTIFY YOUR
SYSTEM AGAINST FURTHER ATTACKS.

It is recognised by the medical profession in CONSUMPTION, EMACIATION, and WASTING in CHILDREN, as entirely superior to plain Cod Liver Oil or other remedies.

All Chemists can supply it at 2s. 6d. & 4s. 6d.

HALLOWS.—You should take the Kepler Extract of Malt with Cod Oil, after your meals, thrice daily, in dessertspoonful doses. When your other symptoms trouble you, take fifteen grains citrate of potash in half a tumbler of water, midway between your meals. For the rest, live generously, and avoid all alcoholics.

CRICHTON.—Use Sanitas Fluid freely in such a case to the skin and clothes. Use the Powder to the closets and sinks. Sanitas Disinfecting Soap and Cleansing Powder may be used for all the woodwork of the room.

L. S. M.—Apply the following as a lotion to the affected part: Hyposulphite of sodium, two drachms; glycerine, four drachms; rose water, to make up four ounces. Mix.

G. C. RAE.—1. Mr. Pulvermacher, 194, Regent-street, W., will advise you. Write for his pamphlet on his Galvanic Belts. 2. A few weeks should suffice to cure you.

A. KAROO.—In your case we advise you to try two Cascara Tabloids, or twenty drops Cascara Cordial between meals, once daily, in water. For the rest, try to rest after your meals, and avoid excess of vegetable foods.

M. B. R.—Try the following pill: Extract of Barbadoes aloes, two grains; extract of nux vomica, half a grain; extract of gentian, a grain and a half. Make a pill. One such pill to be taken once a day, half an hour before meals.

KIMBERLEY.—Try the effect of taking occasionally five drops of pure Terebene (Burroughs, Wellcome & Co.'s) on a piece of sugar after your food.

J. L.—Read the article on Glycerine and its Use in Constipation contained in HEALTH No. 285, to be had from the Publisher. Any chemist will supply the small syringe required. Water may be used or not, as may be found best.

S. MARTYN.—You may derive much benefit from inhaling the vapour of a pint of hot water to which Stern's Pumiline Essence has been added. Internally, take fifteen drops Fer Bravais in water, after your food, thrice daily, as a general tonic.

A WELL-KNOWN STATION-MASTER CURED By Wearing Harness' Electropathic Belt.—Mr. J. B. Carne, Station-master, London, Brighton & South Coast Railway, Clapham Junction Station, S.W., writes:—"I beg to thank you very much for the great benefit I have derived from wearing your Electropathic Belt, which you sent me some months ago. I used to suffer with lumbago and pains in the back, both of which have now ceased. I have highly recommended the treatment to many friends. —(Signed) J. B. CARNE."

IF YOU ARE SUFFERING

From any slight derangement, with the cause of which you are acquainted, you will find that Harness' Electropathic Belt affords a perfect means for the self-application of Curative Electricity. It is pleasant to wear, produces no shock or discomfort whatever, and is absolutely certain to do good in every case. The thousands of testimonials in favour of Harness' Electropathic Belt speak for themselves. A large number of them are published in book form (gratis and post free); but sufferers are invited to call, if possible, at the Company's Electropathic and Zander Institute, 52, Oxford-street, London, W., and convince themselves by inspecting the originals. If you have any reason to fear that your sufferings are serious or complicated, you are recommended to call and avail yourself of a free personal consultation; or, if you reside at a distance, to write for a private "Advice Form," which will be sent you by post (with pamphlet) free of charge.

IN ALL CASES OF
RHEUMATISM, SCIATICA, LUMBAGO, BACKACHE, Or STIFFNESS,

One Single Rubbing

WITH THE PURE PRODUCT

BAYLEY'S WOOD OILS

Is guaranteed to do more good than Six Similar Rubbings with any other Compound Oil, Embrocation, Liniment, or Patent Medicine advertised for the cure of similar maladies, and the Proprietors of these preparations are challenged to refute this statement if they can.

BAYLEY'S WOOD OILS

Is no American quackery, no mere mixture of Hartshorn and Oil, or other worthless compounds. It is NOT a Patent Medicine, but it is a

PURE PENETRATING PRINCIPLE,

which penetrates to the root of the disease, and thus eradicates the malady which compounds fail to relieve.

DON'T DELAY! DON'T BE DECEIVED!

It has CURED SCORES of the WORST CASES!! IT WILL CURE YOU!!!

Our Proofs.

WHAT IT HAS DONE FOR OTHERS.

Two Surgical Operations Failed to Relieve.

MRS. GRAINGER, 33, Bridgman-street, Walsall, spent sixteen weeks in a hospital suffering torture from Acute Sciatica; she underwent two frightful operations—in one of them having a large piece of flesh removed—but without deriving the least benefit, and was discharged as incurable. She obtained a bottle of BAYLEY'S WOOD OILS, used it according to directions, obtained immediate relief, and by the time the first bottle was completed a cure had been effected.

Cured with Half a Bottle.

MR. A. SALT, Hammersmith, had a severe attack of Chronic Rheumatism in his knee and ankle, and for five months had been unable to walk without the assistance of two sticks. The pain in his limbs was so bad that they felt as if they were broken; scores of remedies had been tried, but had done him no good. As a last resource he determined to use BAYLEY'S WOOD OILS, and, to his great surprise and satisfaction, after the first dressing he obtained relief; and before half the bottle had been applied he had lost all pain, and was able to resume his usual work, and to walk as well as ever.

Another Case. "Almost Paralyzed with Pain."

MR. FREDERICK CHAMBERS, Oxford-street, Pleck, says: "I suffered for eight weeks acute torture in every limb, sometimes being almost paralyzed with pain. I had tried scores of liniments, recommended by friends, without obtaining any relief, but after using one bottle of BAYLEY'S WOOD OILS, the pains left me, and I now feel better than I have done for months. I strongly recommend all sufferers from Rheumatism to use BAYLEY'S WOOD OILS, and you are at perfect liberty to mention my name in testimony of its great value."

IF YOU SUFFER FROM RHEUMATISM, SCIATICA, NEURALGIA, LUMBAGO, BACKACHE, or STIFFNESS,

Send to your nearest Chemist for a bottle of

BAYLEY'S WOOD OILS (Price 1s.),

As it is held in stock by all the leading Wholesale Medicine Houses in London, Liverpool, Edinburgh, and Glasgow. If he hasn't it in stock, he can easily procure it for you. If he refuses to do this, send 15 stamps to the Proprietor,

C. BAYLEY, CHEMIST, WALSALL,

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REFUSE ALL SUBSTITUTES.

ONE BOX

OF

CLARKE'S B41 PILLS

IS WARRANTED TO CURE

All ailments of the Urinary Organs (acquired or constitutional), Gravel, and Pains in the Back.

GUARANTEED FREE FROM MERCURY.

Sold in Boxes, 4s. 6d each, by all Chemists and Patent Medicine Vendors throughout the World; or sent to any address for sixty stamps by the Makers,

THE LINCOLN AND MIDLAND COUNTIES DRUG COMPANY, LINCOLN.

Wholesale Agents: BARCLAY & SONS, London, and all the Wholesale Houses.

AVOID RISK OF CHILLS IN THE BATH BY USING

RANKIN'S

CORK BATH MATS.

A REAL COMFORT.

RECOMMENDED BY MEDICAL MEN.

MAKES THE BEST CARRIAGE MAT.

CAUTION.—Please Note: *These Mats are of solid Corkwood, which being a non-conductor, is warmer than any other material to step on from the Bath.*

Of best Furnishing Houses and Chemists.

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WM. RANKIN & SONS,

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LADIES are INVITED to SEND FOR PATTERNS of the

WONDERFUL

LEWIS'S Wonderful Velveteen is well known all over the World. It is Fast Pile and Fast Dyed, and every inch is GUARANTEED.

VELVETEEN

at **2/-** a yard.

If a Dress should wear badly, or be in any respect faulty, LEWIS'S will give a NEW DRESS for NOTHING at all, and pay the FULL COST for MAKING and TRIMMING. The price of this Beautiful Velveteen, in Black and all the most beautiful Colours now worn, is 2s. a yard. This quality Velveteen is sold by the best Drapers at 3s. 6d., 4s. 6d., and 5s. 6d. a yard.

LEWIS'S Manufacture this Velveteen and sell it direct to the Public, and LADIES SHOULD WRITE for PATTERNS of this EXTRAORDINARY VELVETEEN and judge for themselves of the wonderful quality.

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LADIES should write to LEWIS'S for Patterns of New Dress Materials; they will be astonished at the value offered. Please mention HEALTH, and address—

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Gent.'s Four-fold all pure Linen Collars, 4s. 6d. per dozen. Sample White Shirt, Linen Fittings, 2s. 6s., 3s. 6d., 4s. 6d., 5s. 6d., 8s. 6d. each. **Pure Irish Linen Goods at Manufacturers' Prices.** Fish Napkins, 2s. 6d. per dozen. Dinner Napkins, 4s. 6d. per dozen.

IRISH DAMASK TABLE CLOTHS.

2 yds. square, 2s. 9d. each. Nursery Diaper, 4½d. per yard. Real Irish Linen Sheeting, fully bleached, 2 yds. wide, 1s. 11d. per yard. Surplice Linen, 7d. per yard. Huckaback Towels, 4s. 6d. per dozen.

IRISH CAMBRIC POCKET HANDKERCHIEFS

Ladies' Size, 2s. 3d.; Hemstitched, 2s. 11d. per dozen. Gent.'s Size, 3s. 6d.; Hemstitched, 4s. 11d. per dozen.

Samples and Price Lists Free to all parts.

IRISH TWEEDS.

All Pure Wool, unsurpassed for strength, durability, and style. New patterns now ready, 27 inches wide, 1s. 10½d., 2s. 6d., and 3s. 6d. per yard.

Samples Free to all parts.

ALL PARCELS SENT CARRIAGE PAID.

G. R. HUTTON & CO., Larne, Belfast.

A TURKISH BATH AT HOME.

Ready in One Minute. Copious perspiration in 15.

The ONLY COMMON SENSE REMEDY for Colds, Influenza, Skin, Kidney and Liver Disorders.

Complete Outfit, carriage paid, 17/6.

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BLAUD'S PILLS.

Prepared in strict accordance with Dr. Blaud's recipe, and prescribed throughout the world for ANÆMIA, &c.

Messrs. INMAN & Co. devote great care to the making of these Pills, and they direct attention to the importance of their being fresh, and properly made if the full benefit is to be derived from taking them. A Box containing twelve dozen sent post free on receipt of Fourteen Penny Stamps.

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PENNYROYAL & STEEL PILLS

FOR FEMALES

Quickly correct all irregularities, remove all obstructions, and relieve the distressing symptoms so prevalent with the sex. Boxes, 1s. 1½d. and 2s. 9d., of all Chemists. Sent anywhere on receipt of 15 or 34 Stamps by the Maker,

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HOSPITAL TRAINED NURSES for every description of disease—MEDICAL, SURGICAL, MENTAL, and MIDWIFERY—can be obtained at this Institute on application to the Secretary or Lady Superintendent at a moment's notice, being resident in the Home.

MALE ATTENDANTS and NURSES specially for FEVER CASES.

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VASELINE **OIL**: in 8-oz. BOTTLES, 1/6.

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WHITE VASELINE (Perfumed): a perfect Toilet Article, in collapsible tubes, 8d.; bottles, in CARD-CASES, 2 oz., 1/-; 5 oz., 2/-; handsome bottle, glass stopper, 3/6; 1-lb. TINS, 5/-

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VASELINE **COLD CREAM** (for the Complexion): 3 sizes, in GLASS POTS, 9d., 1/3, and 2/-

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VASELINE **COSMETIQUE**: in metal tubes, new style, 6d. and 1/-

VASELINE **SUPERFINE SOAP**: 1/- per tablet; box of 3 tablets, 2/6.

VASELINE **FAMILY SOAP** / VASELINE **TAR SOAP** (Combination of Vaseline and Tar): No. 1 size, 6d. per tablet; box of 6 tablets, 2/6. No. 2 size, 9d. per tablet; box of 3 tablets, 2/-

HOUSEHOLD AND FARM USE.

VETERINARY VASELINE (for Horses, Cattle, Dogs, &c.): ½-lb. TINS, 1/-; 1-lb. TINS, 1/6; 5-lb. TINS, 5/-

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VASELINE **HARNESS PASTE**: one size, 1/-

VASELINE **AXLE PASTE**: one size, 1/-

"FILTRENE," a very superior Sewing Machine Oil: 3d. per bottle.

"**VASELINE**" is the only preparation of Petroleum recommended by the Medical Press and Profession for either internal or external use. It is prescribed by all Doctors, and is used in all the Hospitals of England, Europe, and America, for ECZEMA, TETTER, ULCERATED SURFACES, OLD SORES, ITCHINGS, and ALL ERUPTIONS and IRRITATIONS of the Skin. For Burns, Wounds, Rheumatism, Chilblains, Chapped Hands, Sunburn, &c., there is nothing that can be compared to it.

The **CONFECTIONS** are for the use of Public Speakers, Coughs, Colds, Irritation of the Throat, &c., &c. A more agreeable way of taking Vaseline internally. A combination of Sugar, Gum Arabic, and Vaseline. Can be given freely and with advantage to children. They are simple and delicious, and may be used as an ordinary sweetmeat.

As an emollient **VASELINE** is without doubt the best yet discovered, being much superior to glycerine in softness and healing qualities. This naturally led to its adoption for Toilet purposes. The beneficial effect of this exquisite product on the skin, whether in the form of Pomade for the Hair, Cold Cream, or Soap, cannot be conceived, though it will be easily supposed that what Physicians use as an Ointment for Eczema, Burns, Wounds, and all irritations of the skin must, as a toilet article, be of rare value.

The **POMADE** is the best and purest Preparation for the Hair known. Will strengthen and keep the hair sweet and clean, and the scalp free from scurf and dandruff. Contains no animal matter, and will never become rancid. Will make the hair grow when nothing else will.

The **HAIR TONIC** has precisely the same properties as the Pomade Vaseline, but is intended for those who prefer a liquid preparation—more agreeable for ladies' use. (*This is the only true Deodorised Extract of Petroleum known*).

The **COLD CREAM** is superior to any other article of the kind, will preserve the complexion, and keep the skin from cracking. Does not get rancid or become hard; is healing, soothing, and agreeable to the skin. Excellent after sea-bathing, will remove sunburn, freckles, and cure chaps, and for use after shaving.

The **CAMPHOR ICE** is for the lips and removing pimples and blotches from the face. Recommended by the *Lancet*, &c. A substitute for the usual camphor ball.

The **SOAPS** are the purest, most delicate and delightful. They leave a clean and fresh odour after use.

The **VETERINARY** is a lower grade of "Vaseline," not so highly purified, for the treatment of Injuries and Diseases of Animals, Mange, Loss of Hair, &c. Very useful in the stable and farm. A specific for Scratches, Sprains, Wounds, &c.

METAL oiled with "Vaseline" cannot rust nor corrode. For preserving and lubricating Surgical and other Instruments, Guns, and Arms of all kinds, Bicycles, Sewing Machines, and Household Utensils, &c., cannot be excelled. Will keep Leather soft.

NOTICE AND WARNING.

SERIOUS INJURY has resulted from using cheap petroleum products, sold by unscrupulous persons as "VASELINE," or being "the same thing," which, although somewhat similar in appearance, are made from a different basis by a different process, and refined by sulphuric and other acids, which destroy their remedial value, and render their use exceedingly dangerous.

"**VASELINE,**" on the contrary, is simply a Petroleum Jelly, concentrated by dry heat, and filtered through animal charcoal, practically as white sugar is produced. No acids whatever are used in its manufacture. It is absolutely harmless, and has been endorsed by the entire Medical and Pharmaceutical Press of England, France, Germany, America, &c.; recommended by the most distinguished Physicians, Surgeons, and Chemists of the world; used in all hospitals; mentioned by Consuls in official reports; and daily referred to by scientific and other leading Journals published in every quarter of the globe.

The Public will protect themselves against DANGEROUS IMITATIONS and ADULTERATIONS by seeing that all the "**VASELINE PREPARATIONS**" are put up in original packages, stamped "CHESEBROUGH MANUFACTURING CO., Proprietors and Sole Manufacturers." The fancy word "**VASELINE**" is the Registered Trade Mark of the CHESEBROUGH CO., and applies to their goods only. They desire to impress this upon the Public, as they have spent an immense sum of money in making the virtues and qualities of their articles known, and they take for granted that when any one wishes to buy "**VASELINE**" they do not care to have some worthless and dangerous fraud sold to them under that name.

CHESEBROUGH MANUFG CO., Proprietors and SOLE Manufacturers,

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